

# *Museum*

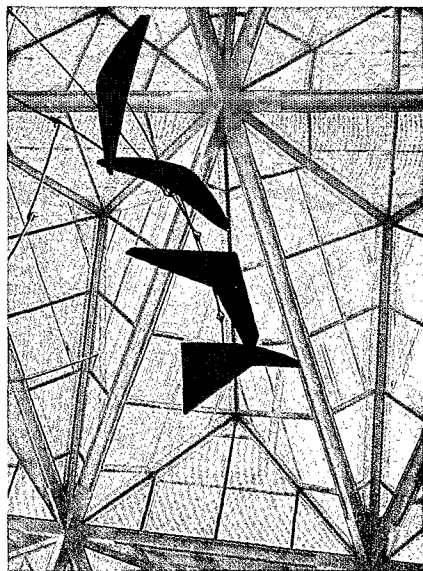
No 164 (Vol XLI, n° 4, 1989)

**Museum architecture :  
beyond the « temple »  
and...beyond**

# ***museum***

*Museum*, a quarterly published by the United Nations Educational, Scientific and Cultural Organization in Paris, is an international forum of information and reflection on museums of all kinds.

The English, French and Spanish editions are published in Paris, the Arabic edition in Cairo, and the Russian edition in Moscow.



The east wing of the National Gallery, Washington, D.C., created by the architect I. M. Pei: view of the ceiling and part of a mobile by Alexander Calder. (Photo: Arthur Gillette)

Editor-in-Chief: Arthur Gillette  
Editorial assistant: Christine Wilkinson  
Design: George Ducret

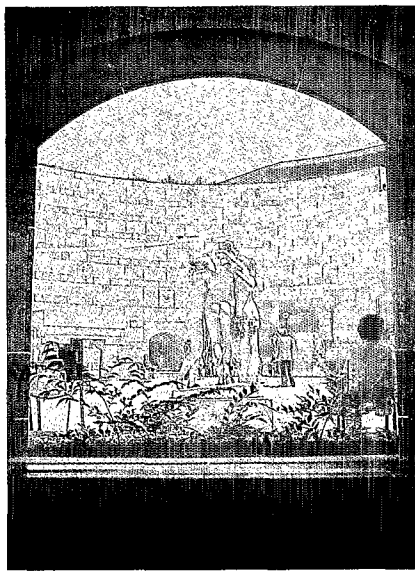
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Typeset by Coupé, Sautron  
Printed by Vanmelle, Ghent  
Printed in Belgium

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Central courtyard in the Staatsgalerie, Stuttgart, Federal Republic of Germany. Architects: James Stirling, Michael Wilford and Associates.

Wolf Tochtermann

## CORRESPONDENCE

Questions concerning editorial matters:  
The Editor, *Museum*,  
Unesco, 7 place de Fontenoy,  
75700 Paris, France  
Tel.: (33) (1) 45.68.43.81  
Fax: (33) (1) 45.67.16.90

Subscriptions:  
The Unesco Press,  
Sales Division,  
7 place de Fontenoy,  
75700 Paris, France

Each issue: 48 F. Subscription rates  
(4 issues or corresponding  
double issues per year): 156 F

Copies of individual articles may be purchased from: Institute for Scientific Information, (Att. Publication Processing), 3501 Market Street, Philadelphia, PA 19104 (United States of America).

## Quotable quotes

'What a strange time we live in:  
museums are turning into churches,  
and churches into museums!'

Jean Cocteau

A well-known architect on the eve of the inauguration of a museum he had designed: 'Today it looks pristine; but you'll see, tomorrow they'll muck it all up.'

## More on museums in the Nordic countries...

To complete information given in *Museum* No. 160, on museums in the Nordic countries, readers should note that the Christian IV crown featured on the front cover is on permanent display in the Royal Danish Collection at Rosenborg Palace (Copenhagen) and was photographed by Lennart Larsen. The photograph of the open-air museum at Maihaugen (Norway), on the back cover, was taken by Leif Stavadahl.



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# Museum architecture: beyond the 'temple' and... beyond

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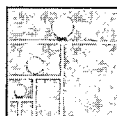
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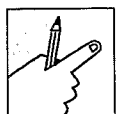


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## From the Editor:

### *When the building is all right...*

The late Georges-Henri Rivière was world renowned as France's most eminent museologist. Less known was his hankering to be a musician; droll as it may sound, he is even reported to have considered a song he wrote for the American jazz singer Josephine Baker his most important work! But the complicity between music and museums is not as far-fetched as one might think. Have not museums been called 'modern-day cathedrals', and what self-respecting Paris guide would omit the classic reference to Notre Dame as 'a symphony in stone'?

In the same fashion, this number of *Museum*, devoted to the current state and future prospects of museum architecture, may be considered a kind of concert. About this concert we now offer some modest programme notes.

The overture is by Yani Herreman, of Mexico, who chairs ICOM's International Committee on Architecture and Museum Techniques. Like any good overture, her introduction provides inviting snatches of the thematic matter to come. It also lays down a conceptual framework to ensure that, no matter how disparate in terms of tune or tone, what follows will make up a harmonious whole.<sup>1</sup> After this overture comes a brief scherzo—Dinu Bambaru's illustrated advice to museum architects.

In the strict historical sense, the number of *Museum* Yani Herreman presents to us is far from a classical rendering. The ponderous Graeco-Roman symmetry of the 'temple' has today been virtually banned from museum architecture. A leitmotiv announced from the outset—and which reappears time and again throughout this number—is the attempt to move beyond the temple and find new ways of combining line and form that are more congenial than right angles and ceremonial staircases to museums' ever-diversifying functions. There are even efforts to move still further, *beyond* the 'beyond-the-temple' stage to... what? The museum/supermarket, museum/country club, museum/street theatre? As with much modern music, the most daring expressions do not suit the tastes of everyone.

Explicitly rejecting the temple, innovators in contemporary Soviet museum architecture are reported by Vladimir Reviakin to be beguiled by folk forms, the traditional architecture of Central Asia, for example. The vernacular idiom also looms large in the thinking of Jorge Gazaneo, who reminds us that, so to speak, the rough urban tango is not enough for the vast spaces of his native Argentina. He suggests that time-tested rural building techniques may—like the languorous and enduring village *zamba*—be better suited to the less frenzied reaches of Latin America.

Similarly, a kind of 'song of the earth' may be heard in Wolf Tochtermann's contribution to our 'Frankly Speaking' column, where he advocates the use of local building materials, and in *Museum's* account of how the Israel Museum was snugly fitted on its hilltop site.

Living with the legacy of architectural history has proved to be problematic for the museums of the United Republic of Tanzania, according to Fidelis T. Masao. There, a specifically African melody has

begun to emerge, but it is only really audible in one setting—naturally, the Village Museum. For the rest, and though the future may bring a change, he prefers the neo-Moorish mode of museum architecture of the 1930s to the not-always-successful attempts to adapt other buildings to museum use.

On the other hand, integration of past and present does seem to have produced a successful medley in the brand-new National Museum of Tripoli (Libyan Arab Jamahiriya), presented here by Mounir Bouchenaki. In fact, the kinds and functions of its display equipment and other facilities have a distinctly futuristic ring. Similarly, Charles Correa's *raga* draws sustenance from an ancient philosophy for museums of today.

Harald Szeemann's interview in the regular 'Chronicle' of the World Federation of Friends of Museums is the solo performance of a connoisseur who, fittingly, believes that architecture should recognize the very personal nature of art, its creation and its appreciation.

The review of five controversial cases of post-war French museum architecture, by Dominique Pilato, comes as variations on the theme: 'how to build a modern museum'. Dissonance, even cacophony, are to be heard here. And how could it be otherwise since (and this is another leitmotiv running through the entire number) there is far from always harmony between the aesthetic *élan* of post-temple museum designers, on the one hand, and the fantastically widening array of technical possibilities available to museum builders, on the other.

Happily, then, technical virtuosity resounds in what could be described as three cadenzas to this number's treatment of museum architecture. Just ten years after their *Museum* article introducing the programming technique of museum construction, Claude Pecquet and Patrick O'Byrne take stock of this technique's progress. Eiji Mizushima outlines the need for and nature of a museum that is 'intelligent' both computer-wise and electronically, basing himself mainly on his experiences in Japan. Finally, Marco Filippi and his Turin Polytechnic team point out that no building is 'dead'. They present their work in monitoring the 'life' of museums at the intersection between evolution of the structures of buildings, on the one hand, and environmental changes outside and within, on the other.

Like many encores, the last two articles in this issue of *Museum* bear no relation to the concert just concluded but do have intrinsic interest. The first reports on current developments in Unesco's efforts to promote the return of cultural property to its countries of origin, or its restitution in case of illicit appropriation.

The second, our regular feature 'A City and Its Museums', looks at museum life in Bratislava, Czechoslovakia. No relation to architecture? On second thought, we are mistaken: the Slovakian capital's museums clearly live and breathe through their buildings, old and new, grand and cosy.

In 1849, a certain Martin Nadaud told the French Legislative Assembly: '*Quand le bâtiment va, tout va*' ('When the building is all right, everything is all right'). An exaggeration? Probably. Yet this number of *Museum* shows only too well that, in museum architecture, if the building is not all right, then *nothing* is right.

With this issue, Fernanda de Camargo e Almeida-Moro and Alpha Oumar Konaré are leaving *Museum's* Advisory Board after many years of generous and fruitful participation for which we thank them both most sincerely. And we are pleased to welcome Yani Herreman, who has joined the Board.

1. *Museum* also wishes to thank Yudhishthir Raj Isar, former editor of this magazine and now Director of the International Fund for the Promotion of Culture, for his valuable advice in conceiving this number.

## *A new canvas for new creative talent: contemporary trends in museum architecture*

Yani Herreman

Born in Mexico. She holds a degree in architecture, museology and history of art and is a teacher at the Manuel del Castillo Negrete Restoration Centre. She was previously Director of the Department of Museology of the Museo de las Culturas (Museum of Cultures) and co-ordinator of museographical projects for the Instituto Nacional de Antropología (National Anthropological Institute). She has participated in the planning, design and co-ordination of a large number of important museographical projects in Mexico and is currently Director of the Museo de Historia Natural (Natural History Museum), Chairwoman of ICAMT (ICOM International Committee on Architecture and Museum Techniques) and Executive Secretary of the Permanent Secretariat of ICOM for Latin America. Member of *Museum's* Advisory Board.

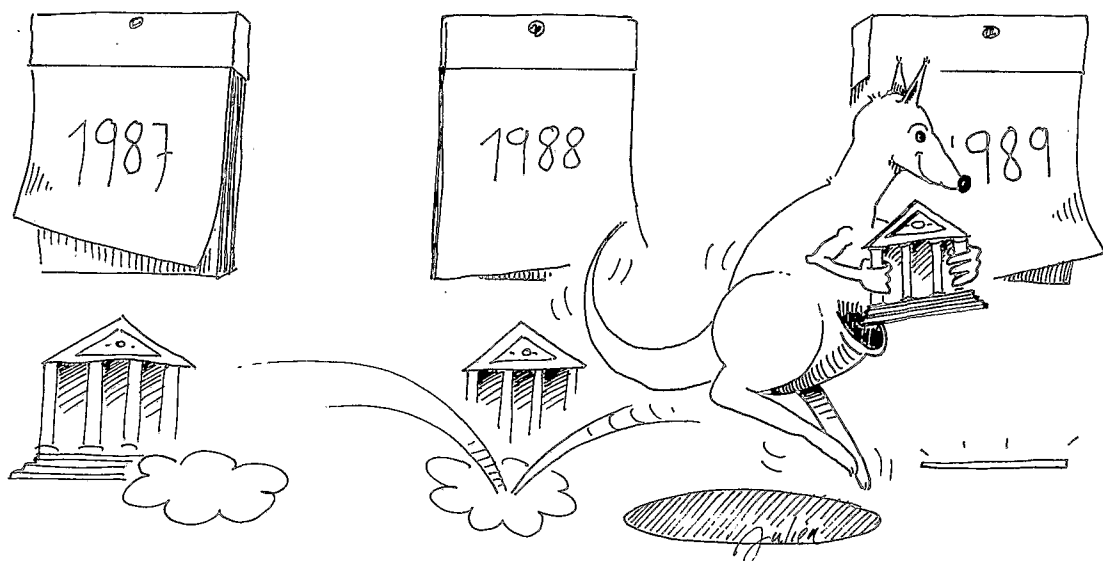
Drawing by Julien

It is widely known that museums are currently experiencing a boom. In many parts of the world the construction of new museums or new wings, and the remodelling and conversion of museums, are undergoing an expansion that could even be described as spectacular. The purpose of this issue of *Museum* is to analyse that trend.

Highly industrialized countries such as the United States have witnessed over the last few years the building of an impressive number of museums, a large proportion of which have been recognized as major architectural works. Similar developments have taken place in the Federal Republic of Germany and Japan, among others, while Canada has spent thousands of millions of dollars on new museum buildings. According to Donald McMichael, Director of the National

Museum of Australia, a new museum building is erected each year in that country.<sup>1</sup>

The picture in the developing countries is quite different, both in figures and in timing. For instance, the Latin American boom got off to a late start and doubtless lacked the drive supplied by a strong economy. It was none the less in those countries that an innovative idea concerning the role of the contemporary museum first saw the light of day and had the most tangible repercussions, i.e. that of democratizing culture. Despite the serious worldwide political and economic crisis the past decade has—overall—witnessed the opening and equipping of an unprecedented number of museums in Africa, the Middle East, Asia and Latin America, priority having been given to conserving buildings that



were part of the national heritage rather than to the construction of new buildings. Even countries with serious economic problems, such as Mexico, have opened numerous museums: the total for the entire country increased from 191 in 1968 to 511 twenty years later, ten or so being new buildings.<sup>2</sup>

These figures show that in our day and age museums occupy a special place on the socio-cultural scene. And it cannot be denied that the message and the image communicated by those museums are partially expressed in their architecture.

Bearing in mind that we are witnessing a totally unprecedented phenomenon in museum history, it would undoubtedly be worth our while to examine its underlying causes, its impact on contemporary society and its future repercussions. We need to recognize that the outward form, the proliferation and the cultural importance of museums are the result of technical, economic and social factors, in the same way as any other form of cultural expression. Whereas previously the museum was considered to be a 'temple of the muses', and like an icon remained majestically remote from the community by the sobriety of both its exterior and its interior, what are we to call the multiplicity of modern museums, covering such a wide range of styles, shapes, sizes, purposes and functions? In order to grasp the essence of this phenomenon it will be necessary to consider the questions, 'What is a museum?' and 'What does society want from a museum?'

### *The museum's place in society*

Without wishing to get involved in a long-standing controversy, I shall simply mention that in 1972 an important regional meeting on museums held in Santiago de Chile reached the conclusion that the museum as an institution should play a genuine and regular part in the life of the community it serves. In 1977 C. Pecquet and P. O'Byrne took a closer look at the following questions: (a) whether the museum would become a factor in socio-economic development or an institution of marginal importance concerned merely with the well-being that goes with the refinements of life; (b) whether it would increase mutual awareness—and hence closeness and understanding—between different groups of human beings or be yet another valuable and staunch pillar of the economy in the wider context of development as a whole; (c) whether it

would turn out to be no more than a special institution designed to delight the most cultivated minds or an instrument for educating the people; (d) whether it would become a centre of cultural activity or an institution reserved for tourists.<sup>3</sup> Two years later Hugues de Varine made an important point when he declared that

culture is being invaded by trade and industry. Collecting works of art is increasingly becoming a commercial activity that takes place in a context where cultural and economic factors are of equal importance and forms part of a universal system in which supply and demand are influenced by advertising, the media and pressure of all kinds.<sup>4</sup>

Ten years have elapsed since then. The questions continue to be asked, despite the fact that innumerable museums corresponding to all the different approaches mentioned above have been built. The museum has not only perpetuated its role of 'political institution, inasmuch as it helps to bring a country academic, cultural and social recognition',<sup>5</sup> but also emphasized it by developing another activity, i.e. fund-raising. It is not to be wondered at that Andrea Dean wrote on the subject of the development of museums that the transformation of museums from dusty depositories for an élite into socio-cultural centres for the masses had made them fiercely competitive and business-minded and that their most convincing argument was that museums enabled a city to increase its revenues and prestige and expand its tourist industry.<sup>6</sup> It is here that the architecture has a vital part to play, as the museum needs to be turned into an eye-catching, not to say striking, receptacle for exhibits in order to carry out its function of publicity agent. The museum becomes as important an attraction and source of delight for visitors as the works it contains.

By strengthening one of the major social services, on the other hand, the museum has also turned into a means of communication, a social centre and an instrument for democratizing culture, in addition to fulfilling its familiar educational role. Hollein considers the museum to be an institution in which numerous activities take place: 'the architect creates an autonomous work of art intended for works of art and for man'.<sup>7</sup>

These two different approaches co-exist, and each of them has been adopted by decision-makers, politicians, museologists, architects and museum curators.

1. G. Maslen, 'Museums: A Global View. Australia: Economic Pragmatism, Self-reliance Sustain Expansion', *Museum News*, September-October 1988.

2. M. A. Madrid Jaime, 'El Sistema Nacional de Museos en México', *Boletín del Museo Franz Mayer*, November-December 1988.

3. C. Pecquet and P. O'Byrne, 'Musée d'hier et d'aujourd'hui', *Architecture*, No. 402, 1977. (See also their article in this number of *Museum*—Ed.)

4. H. de Varine, 'Le musée peut tuer ou faire vivre', *Techniques et Architecture*, No. 326, September 1979.

5. Pecquet and O'Byrne, op. cit.

6. A. O. Dean, 'Estilos cambiantes en arquitectura', *Facetas*, No. 75, 1987.

7. Museumsbau in der Bundesrepublik Deutschland. Museo municipal de arte de Mönchengladbach, *Inter Nationes* (Bonn), 1985.

### *Make the museum meaningful*

Art galleries, which represent the supreme museum example for a large part of the general public, tend to be classified in the first category. They still make up the majority of the museums being built and are most readily associated with the concept of a socio-cultural centre. In addition, they are the largest recipients of financial assistance. Today's art galleries have changed radically, even though their main objective is still to display works of art in order that they may be viewed. Happenings, 'block-buster' temporary exhibitions, large-scale spectacles and other activities of varying worth, which are so much in vogue today, have given them a new dimension. I none the less agree with the remark made by J. M. Montaner and J. Oliveras to the effect that the innovations introduced in the 1950s and 1960s were the main cause of the changes in the spatial aspects and form of art galleries: 'The size of the works of the North American expressionists, the spirit of pop-art, the aims of hyper-realism, land art, minimal and conceptual art, video art and happenings'.<sup>8</sup> As far as the other types of museums are concerned, it is true that in general they have also been characteristic of the new museological age or, in other words, have begun to command the prestige they deserve by virtue of their numbers, quality and importance. For instance, natural-history and science-and-technology museums are a response to the individual's growing need to keep up with the scientific and technological progress characterizing our age. The new museums of this kind that are being built in increasing numbers can logically be defined as major social services. One such is the Cité de la Science et de l'Industrie (City of Science and Industry) in Paris, which Maurice Levy described as a superb tool for arousing popular interest in science.<sup>9</sup> Like the National Air and Space Museum in Washington, D.C., it demonstrates the extent to which the building's image has an influence on the community. Architects and museologists, however, have begun asking themselves questions concerning the extent to which the new architecture has helped to develop understanding of art and science, the degree to which the building in which it is housed contributes to acceptance of the museum as an institution, whether architecture still serves to build 'monuments' reserved for initiates and tourists, the importance of the part

played by the architectural image in strengthening the dominant cultural ideology and the nature of the relationship between the touristic aspects of the museum, its social prestige and economic role, on the one hand, and its architecture, on the other. The replies to these questions are couched in tectonic terms, but in fact have a socio-museological foundation. It is at this point that museology has a crucial part to play as a conceptual science.

There is no doubt that the architect's creativity and sensitivity are at the heart of a successful project. Museum buildings are no exception to this rule, though nowadays architects increasingly collaborate with curators and museologists, who are more familiar with museology in general and with museums and their requirements in particular. Many architects acknowledge the importance of their contacts with the museologist or museum director while working on their designs. Such interdisciplinarity has become possible partly as a result of developments in museology and partly owing to a change of attitude on the part of museologists and the architectural profession towards society. Arthur Erickson, architect of the already famous Museum of Anthropology in Vancouver, Canada, said that architecture was much more than merely just another problem for a museum, since it could determine the museum's very structure. It was required, he went on, not only to take into account factors such as the exhibits, the site, the spatial organization, the technical equipment and other fittings, but also to make the museum meaningful in relation to the physical and social environment of those who looked at it and used it.<sup>10</sup>

### *Cultural buildings: a sector that appeals to innovative architects*

Up to now we have examined the socio-museological aspects of the question; we shall now turn to the strictly architectural aspect.

Museums have always held considerable appeal for architects. The relationship between culture and building is particularly clear and obvious in a museum, as is demonstrated by the great works of architecture built to house museums since their beginnings. Our present era is no exception, because, contrariwise, the construction of museums has come to satisfy a social need that justifies to a

greater or lesser extent their numbers, which are often excessive, and their frequently unnecessary luxury and ostentation.

Just like any other kind of building, museums have changed over the years. The magnificent examples we see today are the direct result of earlier developments—probably those that occurred during the 1960s, that is, the consolidation of museology as a science, changes in the approach and aims of museums, the inclusion of other disciplines in the profession of museology (communications, computer science, the application of psycho-educational principles, sociology, semiology, etc.), developments in exhibit conservation, the progress achieved in the field of museology and huge technological advances. All these factors lead to mainly new functions and activities within the museum, functions and activities that are planned along clearer, more precise and one might say more professional lines. This requires purely architectural planning to take second place to museological planning. Although the latter does not give rise to new functions or approaches it does call attention to them, ranks them, assigns them spheres of activity based on painstaking studies and analyses their relationships, staff requirements and equipment in accordance with more precise aims. Museological planning techniques, together with contemporary museology, lay bare the complexity and heterogeneity of the museum as an institution and as a building. Architects such as Le Corbusier, Frank Lloyd Wright and John Russell, and including more remote examples such as Leo van Klenze, drew up lists of aims and requirements, but it was not until the above-mentioned period that programming methodology enabled museologists to establish their aims with greater accuracy and made it possible for the architect to use form and space in the contemporary museum in a way that served those aims.

In addition to the question of space and form, which is determined by the creativity of today's architects, *the visitors' itineraries and floor plans* favoured by contemporary architecture are dictated by a variety of factors, including in particular:

The ever-increasing number of visitors, who in some cases constitute enormous crowds (the National Air and Space Museum in Washington handles up to 50,000 visitors a day).

The type of visitor, as increasing attention is being paid to handicapped per-



sons, who require special facilities inside the building.

The behaviour of the public (we now know more about visitors' habits and the dynamics of their movements).

The activities staged in the museum.

New ways of arranging the exhibits leading to changes in the route taken by visitors.

Certain aspects of the conservation of exhibits.

Consideration should be given to the idea of providing a large central area from which visitors can obtain an overall view of the museum, and a route that avoids giving the impression of a maze. The Museo Nacional de Antropología (National Museum of Anthropology) in Mexico City (architect: Ramirez Vasquez), the Vincent Van Gogh National Museum in Amsterdam (architect: G.T. Rietveld), the Yale Center for British Art (architect: L. Kahn), the east wing of the National Gallery of Art in Washington (architect: I. M. Pei), are among examples of museums that have introduced such innovations.

Following on closely from that, the *reception area* is especially important inasmuch as it outlines the different options open to visitors and gives them the opportunity to get into the right frame of mind for their visit.

The transformation of the museum as an institution into a cultural centre for numerous activities concerned with communication, where social dynamics or relations have been set up and into which purely commercial or consumer-oriented factors have been introduced, gives a new dimension to the *services and areas intended for the public*, with the opening of shops, cafeterias or restaurants, auditoria, etc.

The increasingly diversified and specialized internal functions of the museum in terms both of 'co-ordination', to quote Pecquet and O'Byrne, and of logistics have led to the emergence of areas that are better defined with respect to their size, height, technical requirements, their links with other parts of the museum and their interrelationships. For instance, the storage area or reserve has acquired specialized and highly specific features to enable it to fulfil its function. The positioning of the exhibits, the fittings, the air conditioning, the amount of space used, the finishes, etc., are determined on the basis of an extremely detailed survey of the museum's requirements. The same applies in newer areas such as the educational services.

*Permanent exhibition areas* have been a feature of museums ever since their origins. They too have evolved, and a distinction may be drawn between two different approaches: the use of a large open space, which offers the greatest flexibility by making it possible to change displays, and that of smaller, fixed, gallery-like areas designed to house specific kinds of works. There is a third, intermediate, approach that was first adopted by the Scandinavian countries during the 1960s, whereby a large space is subdivided in accordance with the requirements of the exhibition, and small galleries are used for less bulky works.

It should be mentioned that *temporary exhibition areas* are gaining in importance and consequently in size and technical sophistication. The ease with which international cultural exchanges take place, the efforts to promote massive exhibitions and their appeal for the general public have made this sector a particularly important one.



The inclusion of security installations in the design process is a further point that reflects the contemporary spirit prevailing in architectural planning. Such considerations should take account of factors as varied as the site of the building itself and the installation of high-technology equipment.

*Conservation* is undoubtedly one of the branches of museology that has developed the most, to the point of becoming essential. Nowadays it covers not only the restoration but also the conservation of collections and is consequently directly connected with two areas in the museum building, the storage and the display areas. The deterioration of museum exhibits is inevitable, but unfavourable environmental conditions can only speed up and aggravate the process. It was the interdisciplinary co-operation between architects and restorers that first aroused awareness of the importance of

8. J. M. Montaner and J. Oliveras, *Los museos de la última generación*, Barcelona, G. Gili, 1986.

9. M. Levy, 'The Center for Science and Industry. Giving a Sense of Human Endeavor', *Architectures Capitales*, Electa Moniteur.

10. A. Suckle, *El porqué de nuestros diseños*, Barcelona, CEAC, 1984.

the amount of lighting, the relative humidity and environmental pollution. It should be added that the conditions imposed by the collections do not correspond to the requirements of users, whether museum staff or visitors. This major dilemma poses a crucial problem so far as the design of display areas is concerned, and has had an effect on the form and interior layout of the buildings. The same may be said of environmental control, there being two trends: the use of high technology, based exclusively on ultra-modern technical equipment, and attempts to find more architecturally oriented solutions, by the choice of volumes, angles, finishes, colour and other tectonic elements.

### *The museum as a form of architecture*

In addition, it must be said that the design and building of museums is a form of architecture in itself. Independently of the museological aspect, it has now become part and parcel of the architectural profession and is consequently governed by styles, trends and schools as an architectural work. As we have already pointed out, the modern movement contains a wealth of examples. The museums built in its wake followed its precepts, which may be summed up as realism with regard to structure and function. The work of Mies van der Rohe, a giant of the modern movement, embodies the pleasure and skill bound up with the use of glass, steel and the geometry of right angles. His work reflects his belief that industrialization is both the problem and the chief solution of our age. He wrote that if the process of industrialization were brought to a successful conclusion our economic, technical and artistic problems would be solved.<sup>11</sup>

Another leading architect of the modern movement was undoubtedly Le Corbusier, who, together with Frank Lloyd Wright, Gropius, Candela, Niemayer, Nervi and Loos among others, developed the technical and expressive potential of concrete.

The major changes that took place in architecture during the 1960s must be distinguished from what came to be known as the international style or modern architecture. Charles Jencks called them 'late moderns', a term he coined in 1977 to describe a group of architects who were sometimes confused with the post-modernists. The recurrence of modular elements on the fa-

çades, the emphasis on constructional or structural details, a logic taken to extremes and numerous affinities with industrial design are all features of two important architectural works regarded as belonging to the late modern movement: the Pompidou Centre in Paris and the Sainsbury Centre for Visual Arts in East Anglia, United Kingdom. The former was conceived as an enormous Meccano construction, with a conception of space that is both simple and linear. The joints and structure are stated very explicitly and link it directly to constructions of industrial design. The façade itself was reversed, the escalators being encased in large plastic tubes on the outside of the building. The latter building is covered by an outer envelope, leaving a 2.4-metre-wide space in which the services are housed. The inside is regular, being the same in all directions and giving the impression of having been designed specifically in accordance with functional requirements of a structural and technical nature. Before the construction of the Sainsbury Centre, walls and roofs were considered separate elements, but in this building they were integrated to form a single structure. Both centres are marvels of modern technology.

### *Architect-cum-artist*

The critic Jane Holtz Kay wrote that modern museums have become a blank canvas for the architect to work on.<sup>12</sup> As we have seen, there is ample proof of this. However, as far as the shapes are concerned, the major architects of the 1960s had a predilection for monumental buildings resembling boxes, with relatively few apertures, although this situation was about to undergo a radical change.

The 1970s witnessed the birth of a new formalism that completely transformed the relationship between form and content, on the one hand, and structure and function, on the other. There were considerable divergences between the new movement and modern architecture, particularly with respect to the rules laid down by the latter.

Then came a point where modern architecture could be considered to belong to the past.<sup>13</sup> The post-modernist era thus began with a type of architecture that offered museums its techniques, language and ideals, just as modernism had done in its time.

There emerged architects such as Hans Hollein, James Stirling, Arata Isozaki (in

his second period) and Frank Gehry, the last exponent of deconstructivism. They had all had a modernist education and retained certain aspects of it in their work while adding new elements. Strangely enough, creative architects such as Philip Johnson and James Stirling still do not consider themselves post-modernists, even nowadays. Stirling, who is universally recognized as being among the great architects, has disavowed the new group, despite, or perhaps owing to, the irony characterizing his work. Certain features of post-modernism are none the less apparent in it, such as the considerable interest he takes in the urban environment, his use of colour and a certain eclecticism in combining contemporary and traditional elements. In his museums the lighting, the proportions and the finishes are considered to be the essential points.

The major examples, and indeed the majority of the architects concerned, are European, North American or Japanese. As we have already had occasion to point out, a strong economy favours and encourages the design and construction of buildings, including museums. This state of affairs does not mean that valuable contributions are not being made in other countries. For Latin America mention may be made of the Museo del Oro in San José, Costa Rica, Museo El Tamayo, Museo de Historia Natural y Arqueológico in Mexico City, Villahermosa-Tabasco and Xalapa-Veracruz respectively. Colombia, Brazil and Venezuela also possess new museums. In this issue of *Museum* the reader will come across other developing countries, for instance India, the Libyan Arab Jamahiriya and the United Republic of Tanzania.

It has not been possible in this introduction to review all the works of that varied and magnificent group of architects who have made incursions into museum design. None the less, our peregrinations have shown evidence of the importance of the museum, which is a prime example of a social institution, for the creative architect-cum-artist. Whatever the nature of its contents, the museum building is in itself an integrated and complete work of art. ■

[Translated from Spanish]

11. P. Drew, *Arata Isozaki*, Barcelona, G. Gili, 1983.

12. Dean, op. cit.

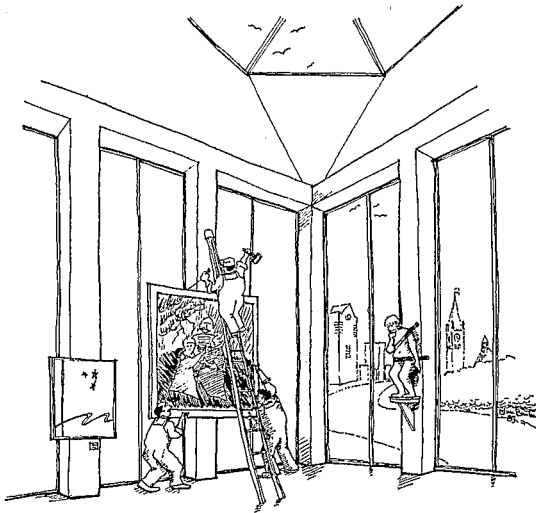
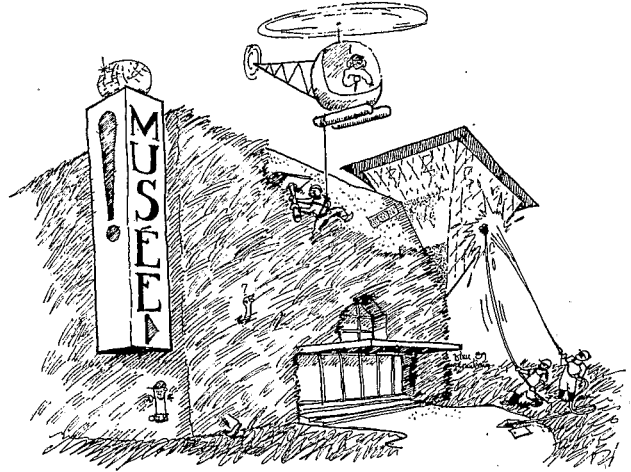
13. Drew, op. cit.

# Ten Commandments for the museum architect

Dinu Bambaru from Canada  
gleaned these messages working  
at home and abroad

1

Pick the ultimate in bizarre building materials, keeping in mind that their upkeep should be utterly impossible.



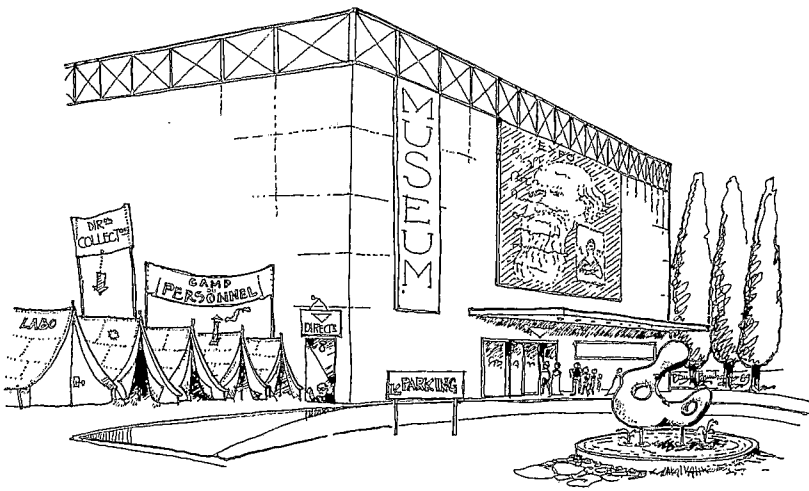
2

Forget that there might be such things as collections.

3

Forget that there might be such things as visitors.



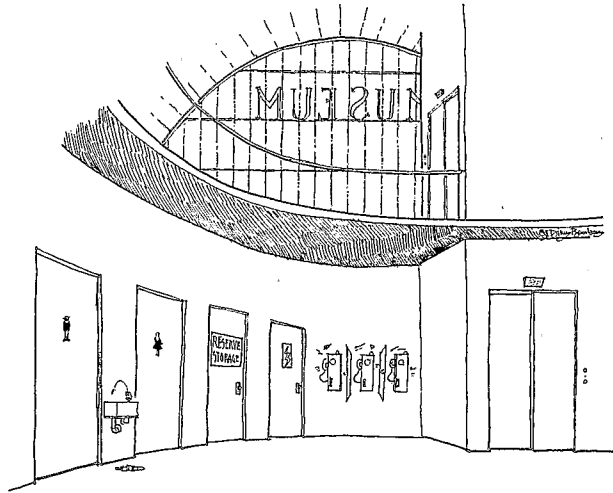


4

Forget that there might be such a thing as staff.

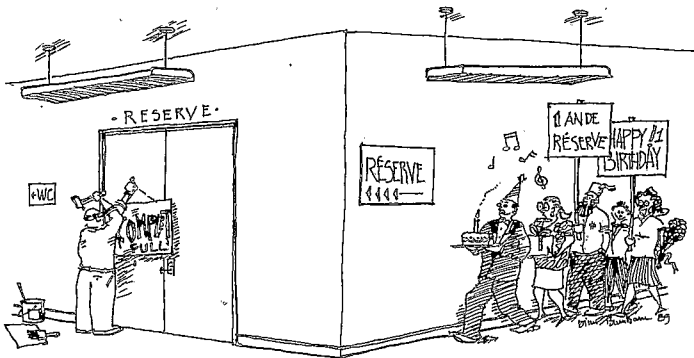
5

Bestow on every inaccessible nook and cranny the title 'storeroom'.



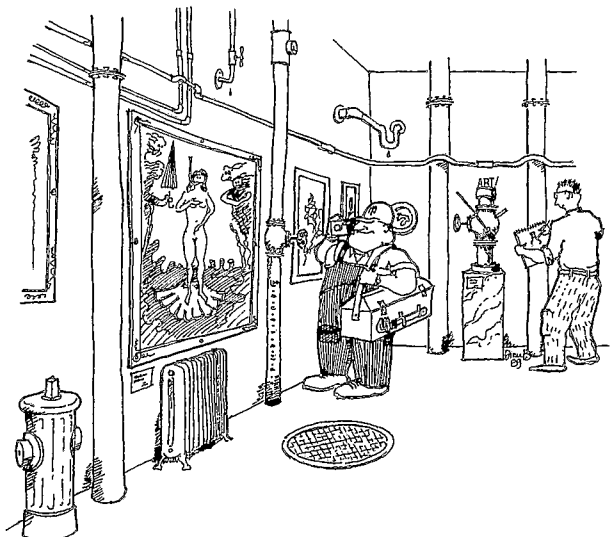
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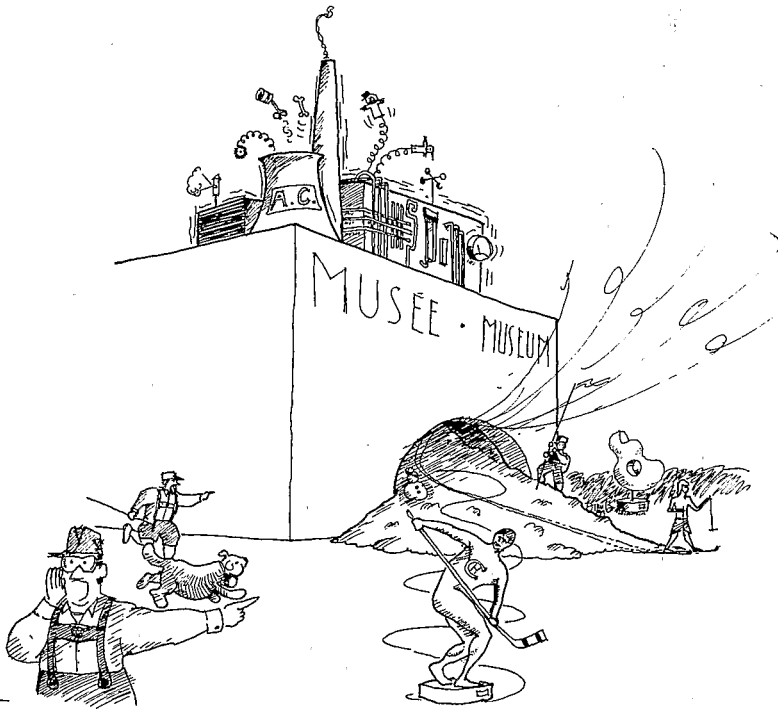
Make sure that storage space is crammed to the hilt one year after inauguration.



7

Make sure that the collections are hemmed in by the greatest possible number of water conduits.



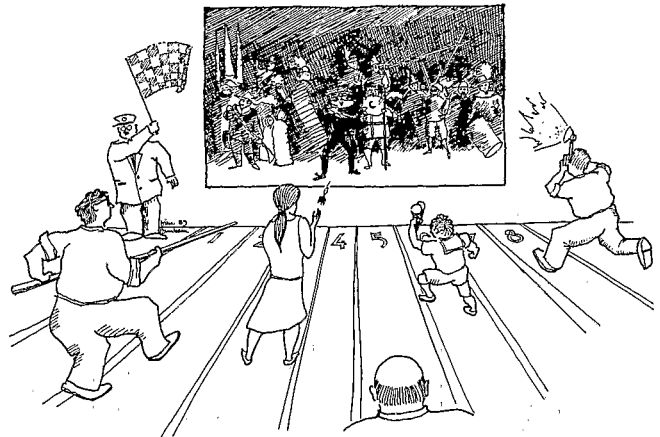


8

To control relative humidity and temperature, place blind faith in a centralized air-conditioning system.

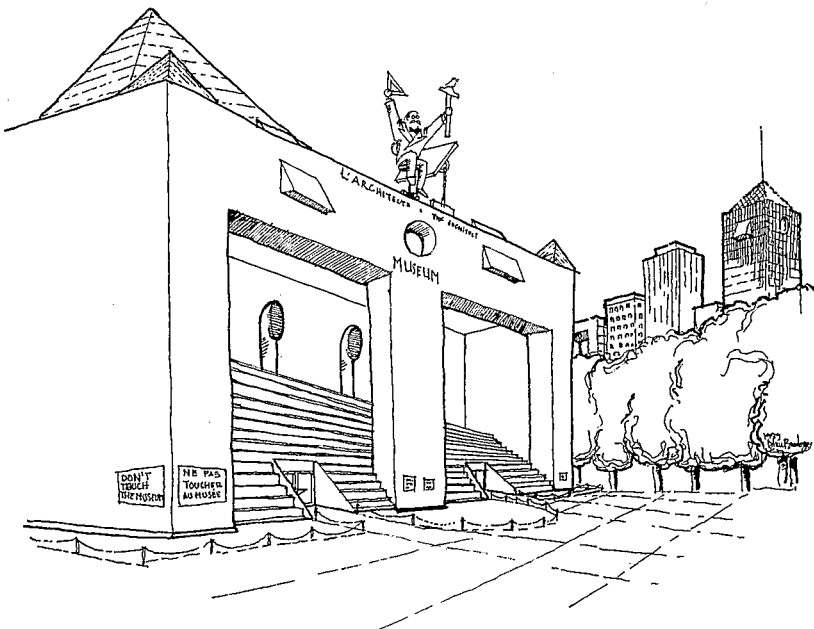
9

Offer visitors total 'hands-on' contact with the works on display.



10

And above all, design a museum that is a monument to the glory of the architect—that's you.



# Museum architecture in the United Republic of Tanzania: living with a mixed legacy

Fidelis T. Masao

Born in 1940 in Uru, Moshi, United Republic of Tanzania, B.A., University College of Nairobi, 1961; M.A. in Anthropology at University of Colorado, United States, 1971; Ph.D. in Archaeology at Simon Fraser University, Canada, 1977. Curator of the National Museum of Tanzania, Dar es Salaam, 1972-77. Since 1978, Director of the National Museums of Tanzania.

Like many African and other developing countries, the United Republic of Tanzania has since Independence had to learn to live with a mixed legacy as far as museum architecture is concerned. On the one hand, there had been some efforts to provide adequate and attractive museum spaces. On the other, the buildings we inherited were far from sufficient to shelter and exhibit to the public significant samples of our abundant natural and cultural heritage; yet efforts to house greater amounts of that heritage in appropriate settings—whether by reconverting structures not originally intended to be museums or by building new structures designed as museums—have faced daunting problems caused by another part of the legacy we received with Independence—poverty.

When discussing museums in the United Republic of Tanzania, I have always found it practical to treat the subject under three main administrative/ownership categories: national museums, regional museums and private museums.

National museums may be said to have come into existence shortly after Independence almost thirty years ago when, by an Act of Parliament, the hitherto King George V Memorial Museum was renamed the National Museums of Tanganyika and, later, the National Museum of Tanzania. At present, the National Museums of Tanzania consist of the National Museums headquarters in Dar es Salaam, the Village Museum at Kijitonyama, near Dar es Salaam, the Arusha Declaration Museum at Kaloleni-Arusha, and the Natural History Museum at Bomani-Arusha. Currently under construction is the Butiama Museum at Musoma, while the Dodoma Arusha Declaration Museum, part of the proposed National Museums of Economic and Political History, is still on the architects' drawing board (Fig. 1).



Fig. 1  
Distribution of museums on Tanzanian mainland: (1) National Museum, Dar es Salaam; (2) Village Museum, Dar es Salaam; (3) Arusha Declaration Museum, Arusha; (4) Natural History Museum, Arusha; (5) Singida Region Museum; (6) Songea Region Museum; (7) Bagamoyo Museum; (8) Musoma Region Museum; (9) Dodoma Museum; (10) Bujora Museum; (11) Butiama Museum (under construction); (12) Dodoma Arusha Declaration Museum (construction to start soon).

An integral part of the move to decentralize government operations from Dar es Salaam to the regions, begun some fifteen years ago, were proposals to establish regional cultural institutions, especially museums. No sooner were the elaborate plans for regional museums put forward, however, than the fervor gradually started dwindling, so that today only four out of twenty regions has a regional museum. Administratively, these are managed by the regional authority under the direction of the Regional Cultural Officer. All four regional museums tend to concentrate solely on aspects of history and culture of the community they serve.

The most prominent of the private museums are those established and run by religious agencies, particularly the Catholic Church, the Bagamoyo Historical Museum being a good example. In addition, there are specialized museums established and run by institutions such as the National Parks, the Geological Survey of Tanzania, etc.

With the exception of the National Museums headquarters in Dar es Salaam and one of the regional museums, none of the museums now in operation is housed in a building designed and meant for museums. On the contrary, already existing buildings not necessarily suitable for museums were acquired and, with minimum modifications, reconverted.

### *Architecture of buildings converted into museums*

The Arusha Declaration Museum and the Natural History Museum, both of which are at Arusha, are examples of museums using buildings designed for other purposes.

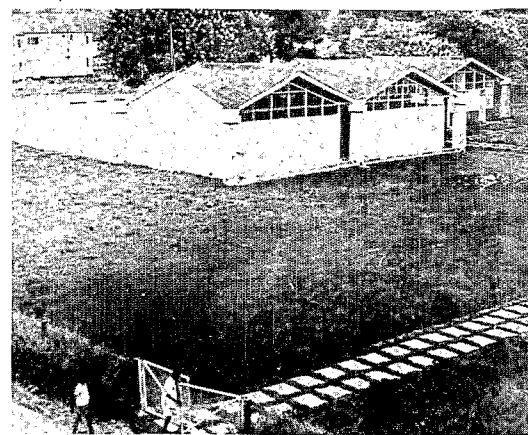
The Arusha Declaration Museum is now housed in a small building which, until 1967, was used as the social welfare hall for the Kaloleni Community in Arusha. In the absence of a more convenient place to hold the historical meeting from which Tanzanians' political and economic blueprint, the Arusha Declaration, emerged and was publicized, the modest meeting hall was chosen for this auspicious function. Consequently, the building attained an unusual historical significance whose perpetuation led, logically, to converting it into a small political history museum on 5 February 1977. This coincided with another major historical event, the merging of the two political parties, the Tanganyika African National Union or TANU (mainland)

and the Afro-Shirazi Party or ASP (Zanzibar) to form a single political party, Chama Cha Mapinduzi (CCM), for the United Republic of Tanzania.

The building is constructed of stone, concrete and glass, with timber window- and door-frames. The floor is composed of a compressed bed of stone and rubble over which a layer of about 10 centimetres of concrete has been cast. The walls are built of stone rising over half way to the eaves, after which 5-mm-thick glass, held in place by wooden frames, is used throughout the building. The cast-concrete roof is multitrangular in cross section, and both on the side and front elevation is supported by reinforced concrete pillars. The original partitions, which had created three small rooms and two meeting halls, have been maintained. The three rooms are now being used as offices for the principal curator, his secretary and the museum's education officer. The larger of the big rooms is used for exhibition purposes while the smaller has been converted into a library and also for occasional staff meetings. In planning the building, the architect provided for a courtyard, which now leads to the exhibition hall. In the courtyard are facilities for toilets and an all-purpose store.

Obviously, the architecture of this building, while quite appropriate for a social welfare hall, was bound to create a number of problems when used as a museum. For example, it lacks a workshop for preparing exhibits and other functions, storage space for collections and objects not on display, space for conservational and curatorial facilities, etc. Technically, the building has also been found to be faulty and incompatible with sound museum conservation principles. The lavish use of transparent glass all over the building allows too much light into the exhibition hall. Consequently, the exhibits (mostly photographic and archival) deteriorate quickly and have to be replaced at a greater frequency than we can cope with.

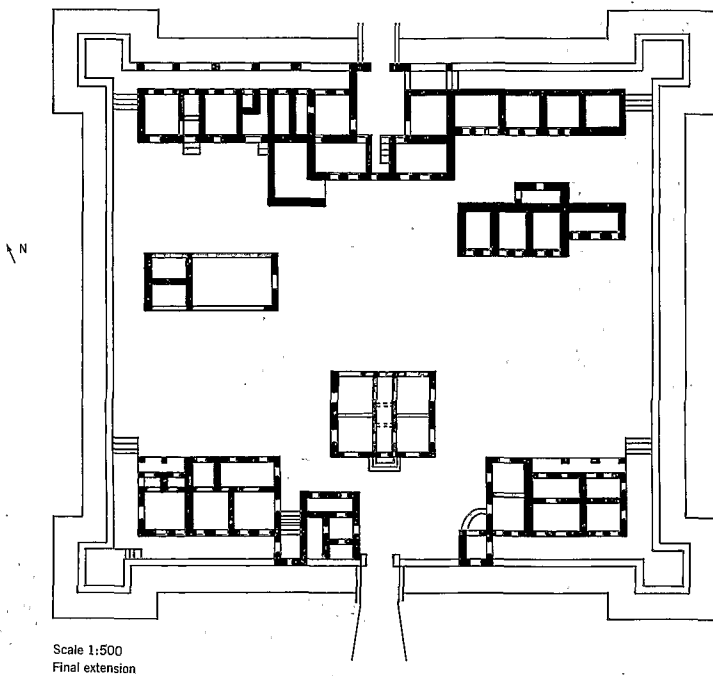
The wooden window-frames also cause a serious problem, allowing water to leak into the room, especially during the rainy season, which encourages development of damp conditions conducive to the growth of mould and acceleration of decay. The cast-concrete slab roof has also contributed to the already damp conditions: over the years, the slab has—due to expansion and contraction—developed cracks which despite its steep gradient has let in water during the



The Arusha Declaration Museum.



Natural History Museum, Arusha, after renovation.



Plan of the German *Boma* as it was before renovation.

rainy season and necessitates constant repairs which the museum's already overstretched budget can ill afford. Finally, the toilets and general facility area should have been located in a more suitable place than where they are, directly facing the exhibition hall.

Despite these problems, measures taken by the authorities to spare the building and use it as a museum should be understood, for the demand for buildings to house socio-cultural activities is always greater than the supply.

#### *Many partitions, small rooms*

The Natural History Museum at Arusha is another instance where use has been made of an existing building, one (in this case) whose history dates back to the German colonial period, that is, a long time before there were any museums in the country. As the sketch shows, the building was the headquarters (*Boma*) of the German administration in Arusha and was used for the same purpose first by the British and then, until a new administrative block was constructed, in the post-Independence days. In the absence of funds to finance the construction of new and modern buildings, the National Museums board of governors had to accept the building and use it as the nucleus and phase one of the proposed National Natural History Museum. Nevertheless, before the building could be used for this purpose extensive exterior and interior renovation and limited modifications had to be made.

One of the many problems we had to grapple with was how best to use a

building with so many partitions and small rooms for exhibitions. Under instructions from the department of antiquities, which is in charge of historical buildings in the United Republic of Tanzania, structural renovations and alterations had to be minimal. Although most post-construction structural partitions were demolished in the conversion process, we still had to deal with an overabundance of small rooms. Consequently, other than the Sub-district Office, which was still being used within the museum compound for administrative purposes (offices), we had to knock down all the doors so that there could be free entry and circulation from one exhibition room to another. Themes for exhibitions have also had to be conceived in terms of components, so that while each room caters for a component of the whole, each component leads from the previous to the following one. To achieve this, the rooms are numbered in sequential order.

Another architectural problem we have had to face is insufficient natural lighting. In fact, some of the rooms in both the Captain's Dwelling and Guard House have no windows at all and thus require total reliance on artificial lighting. Related to the lack of sufficient windows is the problem of free circulation of air, especially when there are large groups of visitors and the temperature outside happens to be high. This creates a rather hot and unpleasant microclimate in the rooms.

The building has, however, exceptionally thick cement walls and very high ceilings, features which have been found to be advantageous. The thick walls keep out disturbing noises from outside much better than more modern constructions and do not easily allow rain-water to seep in to cause dampness. High ceilings also render the rooms cooler especially during the day, when it is hot outside.

Our hands are tied, to a large degree, when it comes to experimenting with efficient use of space for museum purposes in such buildings; after all, they were not built as museums. However, with the low priority accorded to museums, especially in an African context where they are sometimes looked down upon as an imposition of the earlier colonial power, we should count ourselves indeed lucky to have inherited such basically sound structures for museums, and luckier still that we have at least a few structures designed as museums. The two buildings which form the headquarters of the



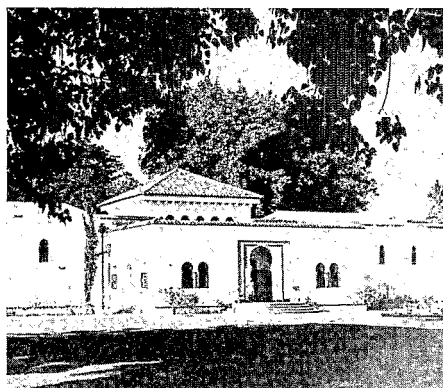
National Museums of Tanzania, and those at the Majimaji Museum at Songea, are the only ones in the whole of the country which were built solely for use as museums. A look at one of these complexes sheds light on further architectural issues now confronting our museums.

### *Built as a museum*

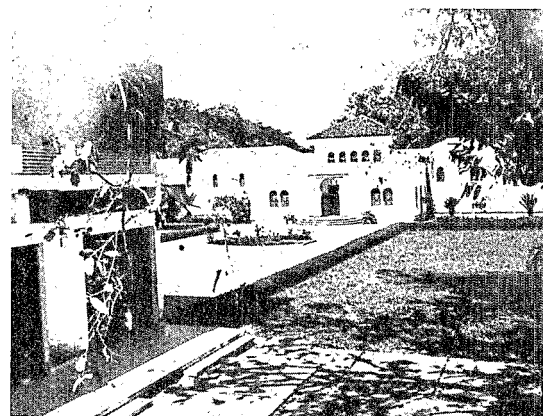
For the so called 'old building' of the National Museums headquarters, the architect was instructed in July 1938 'to design a building not costing more than £8,000, the architecture to be Arabic in character but not too ornate'. The architect was also shown the site where the proposed museum was originally intended to be built, but he advised against the choice of the site because, as he argued, 'all government offices are situated on this front and in the event of new ones being erected in the future, their design could not be in conformity with the museum, which would be overshadowed'. He therefore recommended that the building be erected in the Botanical Gardens. The suggestion was accepted by the managing committee which also proposed the requirements of the building for the architect to consider. Without overlooking the question of cost, the architect presented two schemes, with some variations but resulting in the same overall space of about 5,090 square feet (473 m<sup>2</sup>).

At the building rates of the time, either of the two schemes could have been built for the specified sum of £8,000, but the first plan was chosen simply because it allowed for two exhibition halls rather than one long one as in the second. Other details of the building were as follows:

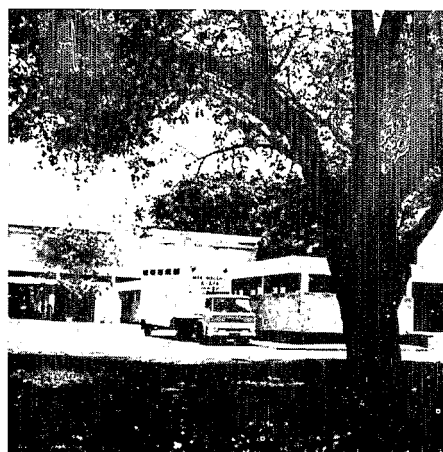
The two exhibition halls would have overhead lighting, cross ventilation would be provided by the high louvred windows, wall space to be used for exhibitions in cases and on shelves, an entrance porch leading into a large vestibule in which exhibits such as maps could be displayed, the height of the vestibule to be 24 feet (7.3 m) from floor to ceiling, an Arab door from another building to form the entrance to the vestibule, offices for the curator, a library which could also be used as a committee room, a workroom, and a staff lavatory as well as a public lavatory to be provided. All drainage was to be concealed in the walls and floors, the floor of the entrance was to be tiled; the floor of the vestibule was to have mahogany wood blocks and those



The old building and part of the new building of the headquarters of the National Museums of Tanzania.



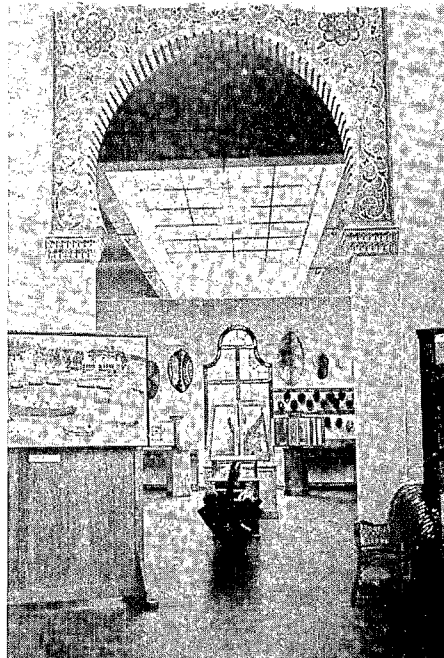
The old building of the National Museums Headquarters, previously known as the King George V Memorial Museum.



The new building of the National Museums Headquarters, Dar es Salaam.



Windows in the Euro-Arabic style, old building.



Entrance into the exhibition hall, old building. Note the Arabic style and the decorative tiles above the entrance.

of the museum and curator's office were to have cedarwood blocks, while the rest would have cement floors.

Concerning construction, it was recommended that the architect build the main walls of cast concrete, while the partition walls to the lavatories were to be of concrete blocks. All walls were to be plastered with coats of distemper and the ceilings of the exhibition halls, front and rear wings, were to be similarly treated. The steel girders carrying the main flat concrete roof would be supported on steel stanchions all cased in concrete, plastered and distempored to match the walls and ceilings. The concrete flats surrounding the lantern lights and glass ceilings of the museum halls and over the front and rear wings were to have a patent felting laid over them as an additional security measure against leaks. They would be drained using rainwater pipes having large heads designed to suit the building.

The roof of the vestibule was to be of timber with boarding laid on the rafters, with patent felt roofing laid over the boarding, and the whole being covered with semi-circular 'Italian' roofing tiles. The ceiling under this roof would be especially designed and lined with a patent 'Celotex' lining, all of it to be distempored. All joinery work such as doors, windows, etc., were to be of *mvuli* (mahogany) timber. The architect incorporated most of these details, in addition to two wide doors at the rear, one leading to the exhibition halls and the other to the work room.

It is important to note that the building was planned so that it could easily be extended, but that when it was decided in 1963 to embark on an expansion scheme, a new building was erected on a site so laid out that it was not necessary for the two buildings to touch each other.

Construction work started in 1938 and on 7 December 1940 the museum was officially opened to the public.

If we were to evaluate the designs of the building and their suitability, we should have to give the managing committee of the time and the architect a great deal of credit. To start with, the choice of the location, the Botanical Gardens, is really ideal, as the museum has in fact not been overshadowed by other buildings. The Euro-Arabic architecture, exemplified in the semi-circular windows, and the semi-circular red tiles for the roof, render the building quite unique and beautiful. Fifty years later it is still considered one of the most beautiful

buildings in Dar es Salaam. The *mvuli* wood joinery, the tiles in the vestibule and the wooden-block floor in the exhibition halls and library have also stood the test of time very well.

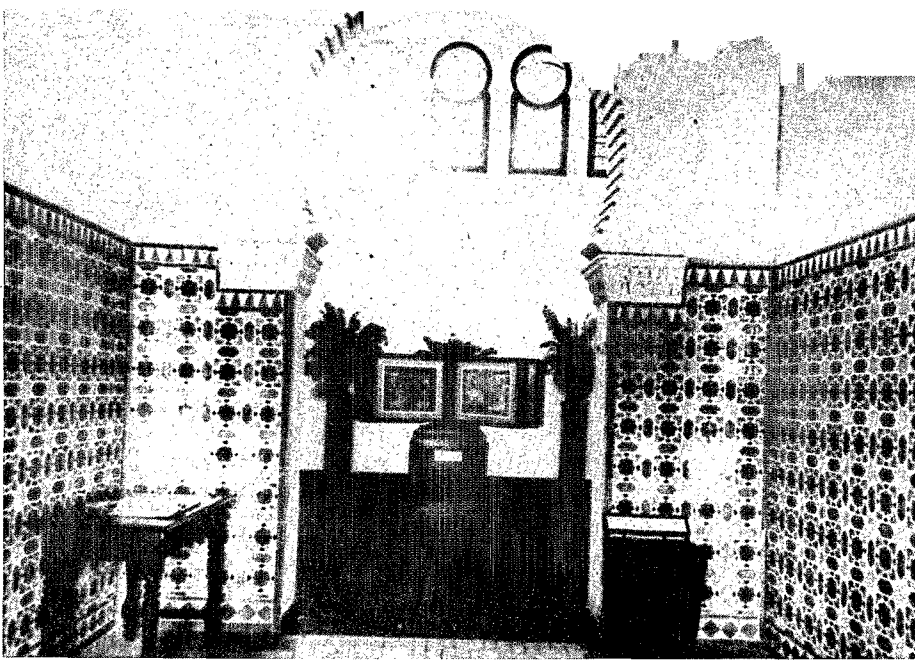
Unfortunately, however, the rain gutters on the roof could have been made bigger, for over the years they have tended to become blocked. The glass ceiling over the exhibition hall, though enhancing the aesthetics of the building, was perhaps not such a good idea as it has proved difficult and sometimes dangerous to keep clean. Finally, the coral 'stones' which were used in the construction are rather porous and tend to let in water.

### *Too low for the Brachiosaurus Branchai*

As opposed to the old building, which as has been pointed out has a unique character, the so called 'new building'—that is, Phases 1 and 2 of the three-phased expansion of the National Museum and built in 1963 and 1968 respectively—has been found wanting in many museum-specific details and features. I shall spare the reader the boring details of meetings between the museum authorities and the architect which decided on the design of the building. Suffice it to point out that public pleas to expand the then King George V Memorial Museum housed in the old building date back to the eve of Independence when, in June 1959, the *Tanganyika Standard* carried an editorial and readers' letters asking the government to act in this regard.

In 1961, the then curator outlined a scheme for the development of the museum: 'to house the ever-increasing collections, particularly material relating to the prehistoric and historical developments in the country'. Also included in the proposed scheme were two air-conditioned galleries for natural history, an oceanarium and a reptile park. The Board commissioned Mr H. French of the architectural firm French & Hastings to produce sketch plans to incorporate the proposed extensions. The proposed extension was to be undertaken in stages, the first stage to cost in the region of £35,000.

In the archives it is mentioned that the design of the new building was the result of close co-operation between the architect and the curator. Consequently, at the completion of Phase 1, the National Museum acquired a building with two exhibition halls, one with—on the



The vestibule. Note again the decorative tiles.

ground floor—195 m<sup>2</sup> of floor space and the other 322 m<sup>2</sup>, plus storage space of 412 m<sup>2</sup>, two offices, a vault for hominids and other priceless collections, a dark-room, a laboratory, toilets and another 352 m<sup>2</sup> exhibition hall, on the first floor approached by a staircase from the entrance hall. Phase 2 of the expansion has provided more storage space, six offices, accommodation for the Department of Antiquities, a loading bay, staff toilets and a garage. Phase 3 would have provided a library, a lecture theatre and one more exhibition hall, but this has been frozen due to lack of funds.

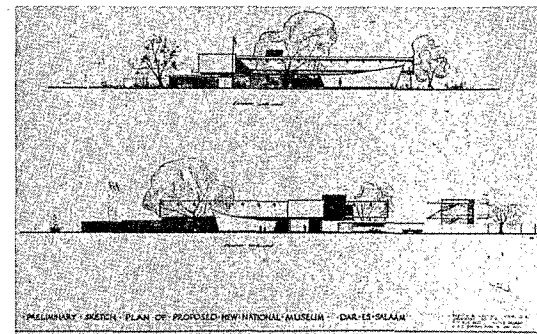
Despite the newness and the assertion that the new building was the result of close co-operation between the architect and the curator, we have found the new building defective and indeed rather difficult to manage. Overall, the ceilings are rather too low, thus creating acoustic and climate problems, not to mention the difficulties the limited height would impose if we wished, for instance, to display the skeleton of a dinosaur such as the *Brachiosaurus Branchai* which has been found in our country.

The building has too many windows which, while they supply enough air to the exhibition halls, have of late been found to impose a security risk. As a result the museum has had to spend badly needed money to block off some of the windows while others have had to be burglar-proofed by fixing steel grills. Both Phases 1 and 2 had concrete walls with a flat cast-concrete slab for the roof. The concrete walls have presumably proved too heavy for the foundations and the soil and, as a result, large cracks have developed in the walls. Some of the cracks are so big that they impose such a security risk to staff and visitors that money has got to be spent to rectify them.

Furthermore, no sooner had eight years elapsed since completion of construction than the roof started leaking profusely; this not only damaged exhibits but also raised the already high and uncomfortable humidity in the exhibition halls and storage areas. To be rid of this problem, we have had to put on a new roof of corrugated iron sheets.

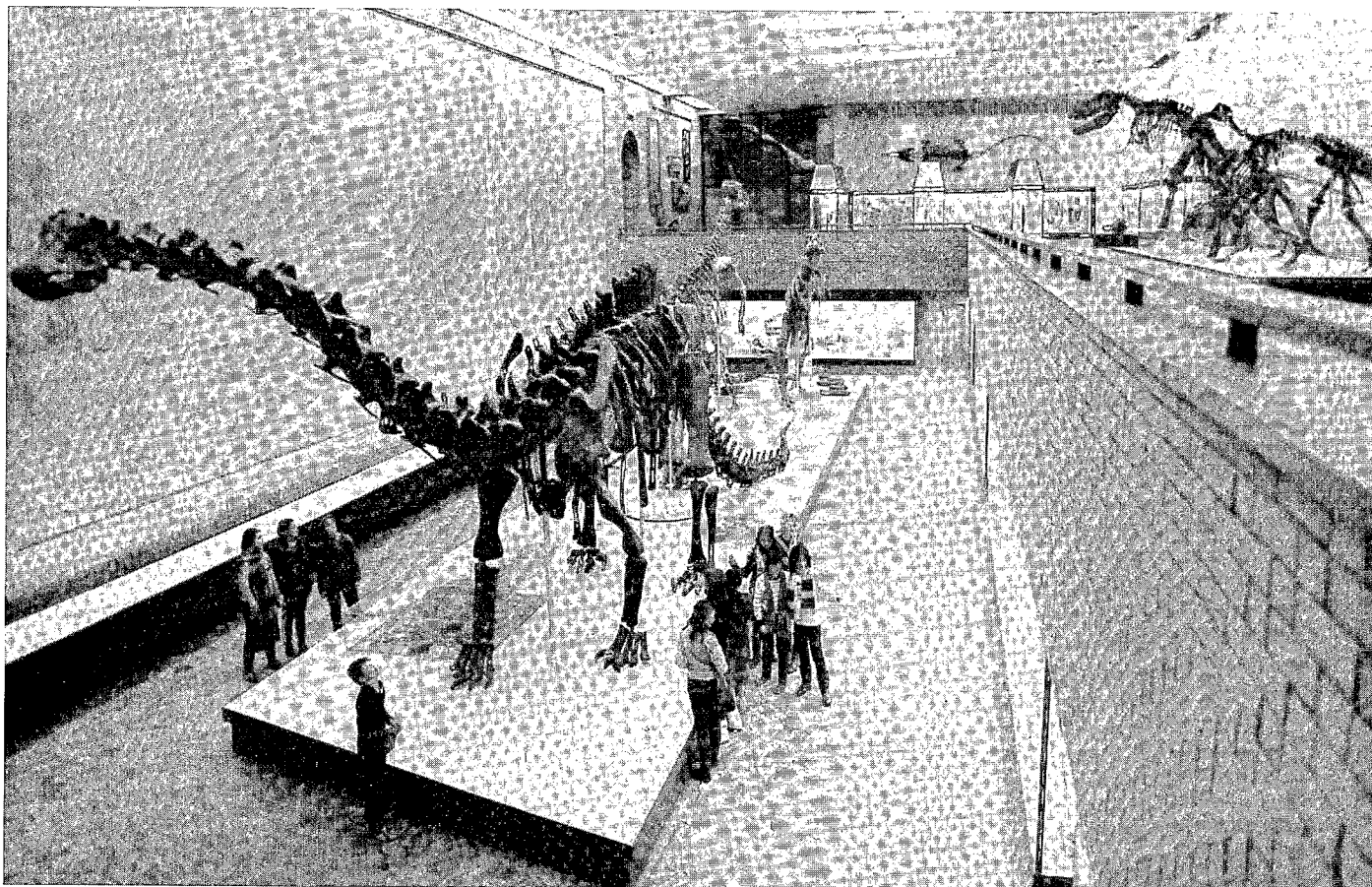
The overall feeling is that either the architect did not understand museums well or the curator, an expatriate on contract, was not really interested in seeing a suitable museum building come into being. Obviously, the architect's supervision of the contractor was rather lax, whence the shoddy product, a building with many architectural and structural defects.

All these faults and shortcomings notwithstanding, we are happy to have a building for the museum. No doubt we shall continue to use the building for a long time to come, for even if we find the financial resources for several new buildings, we could, in fact, never have enough for the country's cultural and natural heritage. Our experience has made us very explicit and thorough when dealing with architects responsible for the Butiama Museum now under construction, and to this end we have had several meetings with Mr W. M. Feruzi of Archplan International who are the architects for the proposed Arusha Declaration Museum at Dodoma, in the hope that these two museums will be architecturally and structurally sound and responsive to their intended purposes and functions. ■



Plan of the proposed new building being an extension of the National Museum.

# New trends in Soviet museum architecture



A. Morkovkin © IASS

## Vladimir Reviakin

Born in 1939, graduated from the Moscow Architecture Institute in 1962. Candidate in sciences (architecture). Author of more than forty plans for museums, including those built for regional ethnography in Omsk (Siberia) and Blagoveschensk (Soviet Far East), and fine arts in Arkhangelsk (northern RSFSR), Izhevsk (Udmurt Autonomous Republic) and Tambov (central RSFSR) and the Ho Chi Minh Museum in Hanoi (Viet Nam). Author of *Fine Arts Museums* (1974), *Exhibitions (Architecture and Expositions)* (1975), *Architecture of Museums for the 1980s* (1979), *Historical and Regional Ethnography Museums* (1983), *Architecture of Lenin Museums* (1986) and *Recommendations on Museum Design* (1988). In press: *World Museum Architecture* and *Museums of Science and Technology*.

The history of museum architecture<sup>1</sup> is long and controversial, beginning with buildings modelled on temples and palaces and evolving into a wide variety of modern types of edifice. Each stage of development has been productive in its own way and contributed to the creation of certain laws, which became accepted as axioms in the everyday activity of museums. Today, as never before, accepted views are undergoing radical change. Having been in the profession for twenty years I note with great pleasure that contemporary renewal of the life of Soviet society has also brought about long-awaited changes in design and construction of museums.

Reconstruction has started in practically all important museums in the country, among them the Hermitage and Russian Museum in Leningrad, and the Tretiakov Art Gallery, Pushkin Fine

Arts Museum, Historical Museum, Museum of Polytechnics and Central Lenin Museum in Moscow. In addition, no less than 335 new museums have been opened in the last six years. These include the Museum of Palaeontology and Glinka Music Culture Museum in Moscow, the Kazakhstan History Museum in Alma-Ata, the Museum of Modern Arts at Yerevan, and the Ethnography Museum at Sardarabad (Armenia). While some of these represent new architectural departures, no less ingenuity and professional knowledge were required to fit new museums into old buildings, as was the case with the Museum of Clocks in Klaipeda (Lithuania), the Amber Museum in Kaliningrad (on the Baltic Sea), the Bicycle Museum in Shaulai (Lithuania) and the Forgery Museum not far from Moscow.

The aim of reconstruction of already

The Palaeontology museum in Moscow (architects Y. Platonov, V. Kogan, V. Nagikh, L. Yakovenko)—one of the world's major natural history museums—recently moved to new premises. The building also houses the Palaeontology Institute of the USSR Academy of Sciences. This view of the exhibition hall demonstrates one of the main principles of inner-space organization: a visitor can see large exhibits from different levels.

existing museums and building further ones (in reconverted or brand-new premises) is to make more and more of our magnificent but rarely exhibited collections accessible to the public at large. Any architect will confirm that to work on a museum project is today a most desirable challenge since it offers every opportunity to express one's own creative credo, and one's own interpretation of problems.

### *Portico-and-frieze: a façade of the past*

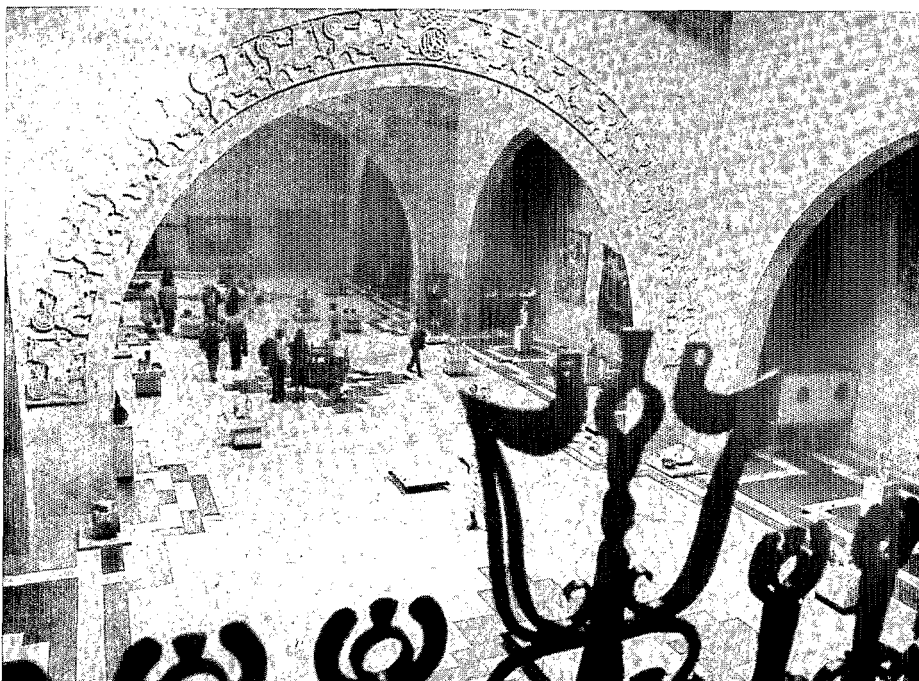
Among the specific architectural features accepted for decades all over the world as indispensable for any museum building were: a façade with a portico topped by a frieze of allegorical figures representing the fine arts, and, inside, a grand formal staircase leading to an enfilade of symmetrically laid-out exhibition halls from whose ceilings hung stylized glass lighting fixtures. Such an approach to design has become rare. The source of each new project is now the urge to find original architectural solutions. It is mainly on the initiative of the museums themselves that the traditionally isolated museum world has started to open up to new, more lively tendencies.

The starting point for any project is the profile—the personality—of the museum. Thus, in a local museum the design should be not only functional but also symbolic of the region. In a memorial museum, on the other hand, it is

image and artistic interpretation that should be given priority. In the design of the Revolution Museum in Vilnius, Latvia, the dynamics of historical development characterized by a kind of 'coming together' found original expression: the construction is formed by eight different adjacent volumes which seem to merge.

Architects working on plans for new museums are also taking into account climatic as well as national differences, since conditions vary widely from one region to another of our vast country. A good example of this principle is the Fine Arts Museum at Nukus, Kara-Kalpak Autonomous Republic (Uzbekistan). The climate there is sharply continental with wide variations and, particularly, great heat; the characteristic feature of this construction is a star-like dome covering the inner courtyard (see photo), surrounded by exhibition halls. The halls are separated from this courtyard by blank walls, serving to preserve the exhibits from dangerous temperature shifts. Special attention is also being paid today to construction of memorial museums. Heated debates are, for example, being held as to the type of the future memorial that will commemorate the Second World War.

Evolution of museum structures is also dictated by newly emerging museum functions, and these functions of modern museums far surpass the traditional storage and exhibition of cultural objects. A museum can serve as a centre for holding not only exhibitions but also meet-



Central exhibition hall of the Ethnography Museum in Sardarabad (Armenia), showing regional motifs.

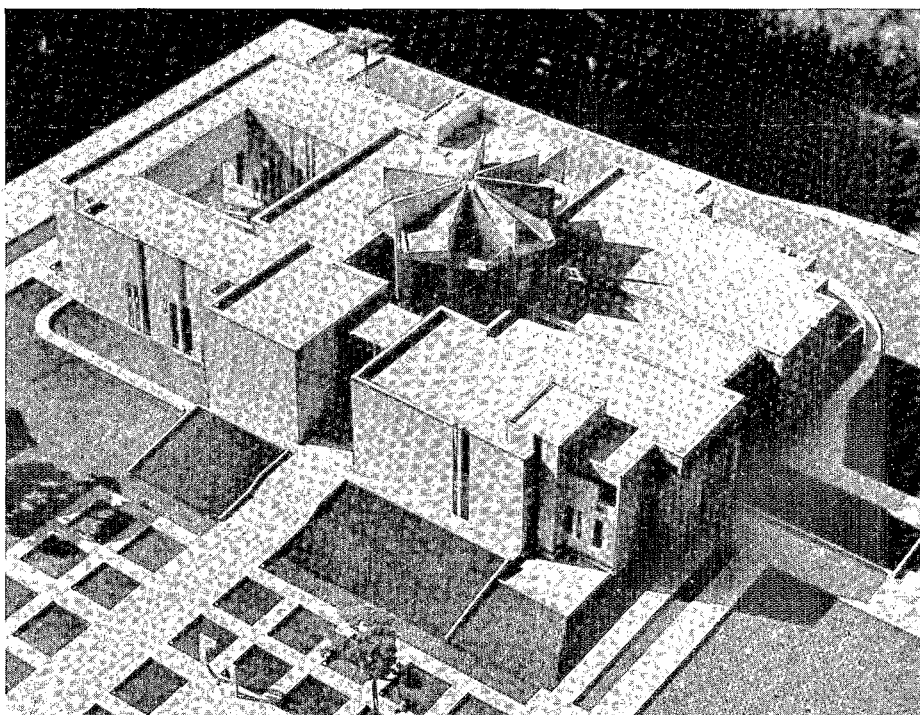
1. Reference is made here only to buildings especially constructed for the exhibition of collections.

ings, debates, festivals, concerts and other forms of entertainment. From the architectural point of view, this calls for the diversification of premises, including of course the usual laboratories and workshops, libraries and offices for research work, large lecture and cinema halls, and, in addition, rooms where different kinds of societies can meet for recreational and other activities, all of which need much space.

In museum design we see the traditional division of space being complemented by various new kinds of spatial distribution. Temporary exhibitions are among those functions that are becoming more and more important in the life of our museums, for example, and they have specific requirements in terms of space. We have, in this regard, the example of the Exhibition Hall in Vilnius, founded as a separate branch of the Fine Arts Museum for the sole purpose of housing temporary exhibitions.

Storage is another basic museum function now being architecturally reinterpreted. Little by little, crowded dark basements are being replaced by well-lighted spaces with modern equipment, open to researchers. It is significant that the reconstruction of the Tretiakov Gallery started with the creation of new storage areas. Similarly, the experience of the Lvov Art Gallery (Ukraine) and the Ethnography Museum at Tartu (Estonia), where special stress is paid on demonstrations held in the very reserves themselves, is highly indicative of the new approach to storage space.

A model of the state Art Museum at Nukus, Karakalpak Autonomous Republic (architect A. Koslova). According to local tradition, all the museum premises are located around inner courtyards.



Courtesy of the author

### *Smaller museums, branch museums and museum associations*

In recent years, researchers conducted various studies aimed at determining the types of interests among different groups of museum visitors. It turned out that to every museum corresponds a certain type of visitor. This fact is now taken into account when creating different types of museums, or making them more specialized. New museums are as a rule rather small, since intimacy makes for better layout and understanding of an exhibit. In the city of Penza, there was even created a One-Picture Museum.<sup>2</sup> There is thus a strong tendency to turn single large museums into a several smaller-scale institutions, and to open new branches to cater to well-defined groups of visitors. Small museums are tending to band together in specialized museum associations, of which more than thirty now exist.

When preparing construction plans, architects have traditionally worked on the assumption that a museum is an autonomous body with special but immutable needs. The core of the architectural and decorative concept was, quite rightly, formed by the type of collection, the status of the museum and its forms of activities. However, plans never took into account that, in ten or fifteen years' time, the museum's collections, functions and staff would grow and change, which has resulted in real difficulties. Sooner or later, reconstruction of the building became unavoidable, but was hampered by the rigid scheme of the original design, and by lack of land. Fortunately, this situation is now changing. Take, for example, the collection of the Kaunas Fine Arts Museum in Lithuania. The first stage of reconstruction produced a new building intended to exhibit works by M. K. Churlienis, a Lithuanian artist and composer. Then the basic collection of the museum grew, and there appeared a need for additional space, which led to the construction near by of a new picture gallery of complex configuration. Among the dwelling houses in the ancient part of the city has recently risen yet another new building for the still-expanding collection, a structure that draws one's attention through the vivid character of its architecture.

Construction of an independent building which can provide common storage and workshop facilities for several museums is another possible solution to

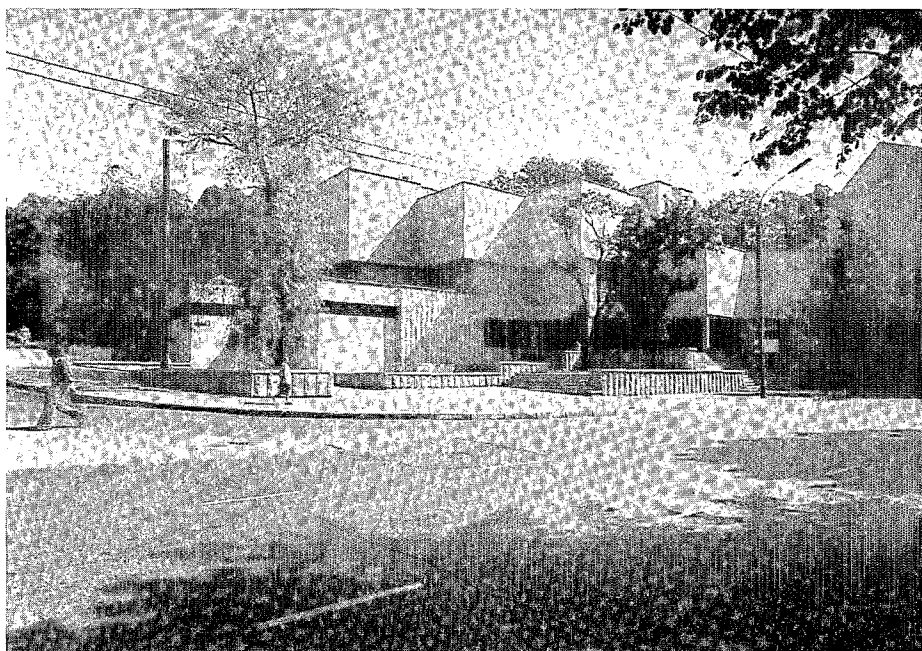
the problem of overcrowding faced by each of them separately. Such a building should be equipped with top-notch restoration laboratories, and could serve as a kind of 'museum bank'. Our experts have already worked out theoretical concepts and projections for such complexes.

Another of the most important issues in museum architecture is lighting. To create a properly lit environment in an art gallery, for example, architects tend not to rely exclusively on artificial lighting, but also to use a variety of light-providing architectural devices. The Alma-Ata Art Gallery has, for example, been built as a pyramid resting on a snow-white parallelepiped. In Tashkent (Uzbekistan), with the highest number of sunny days per year in the USSR, architects used another lighting device: glazed walls. This solution may not seem suitable for a hot climate, but modern technology has enriched the architectural arsenal and made it possible to overcome many constraints. In the Tashkent museum, specially treated glass with protective properties was used.

### *Only by working together...*

What exactly is the process of programming? That is to say, what determines the choice at each crossroads along the critical path of design and implementation? Before an architect starts actually drawing up blueprints a programme should of course be prepared for the future museum, from which the design specifications are derived. This stage is quite important since it defines the functions of the particular museum and its basic quantitative characteristics (types and dimensions of premises, number of exhibits in museum halls and reserves, even economic parameters), and also its probable future reconstruction possibilities, as well as its incorporation into the fabric of other cultural institutions.

For decades museology and architecture developed side by side, but separately. Architects thought they could skip information on the actual collections since, for them, an exhibition was just an abstract notion. It is evident, then, that architecture was always predominant over exhibition requirements, which resulted in the appearance of 'monuments' to this or that particular architect or, at the other extreme, insipid uniform buildings with no character at all. Museum professionals, on their side, confined their participation in design



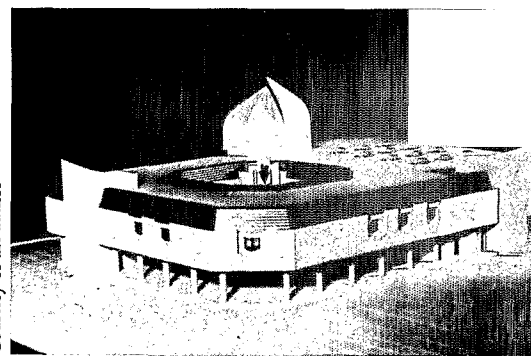
Art gallery at Kaunas, Lithuania, (architect, L. Gedgaudene). The complex was designed to lend itself to possible later extension.

preparation to justifying their exhibition intentions, while completely ignoring other basic factors, such as the traffic of visitors, building materials, etc. This situation is slowly changing, as museology and architecture in the USSR come into contact more and more often.

A sign of the times is the revival of open competitions challenging a variety of talents—a common practice in the 1920s. Owing to one such competition, the Kaluga Cosmonautics Museum design was chosen,<sup>3</sup> as were those of the Revolution Museum in Vilnius (Lithuania) and a museum in a remote Caucasian mountain village, Mestia (Georgia). Unfortunately some projects that won open competitions (e.g. for the Laquer Miniature Museum at Palekh (central RSFSR), the Car Museum at Togliatti on the Volga, and the Museum of Literature at Orel (central RSFSR) still remain to be built.

The best results are brought about, I feel, by the joint efforts of architects, artists and museum staff working on a long-term scientific programme for a museum. It is here that the most fruitful discussions take place, and that germinates the real work which will last up to the opening of the museum, and beyond. Although the role of the architect is of great importance I, an architect myself, am not inclined to overestimate it, and believe that only by working together can museum professionals, architects and artists reach what is, after all, their common goal—designing modern museums. ■

A model of the regional ethnographical museum planned for Ufa, Bashkir Autonomous Republic (architects, G. Isakovich, V. Reviakin, A. Kostin and N. Sulimova). Part of a historical and cultural centre in the old town, the building features elements of traditional Bashkir culture.



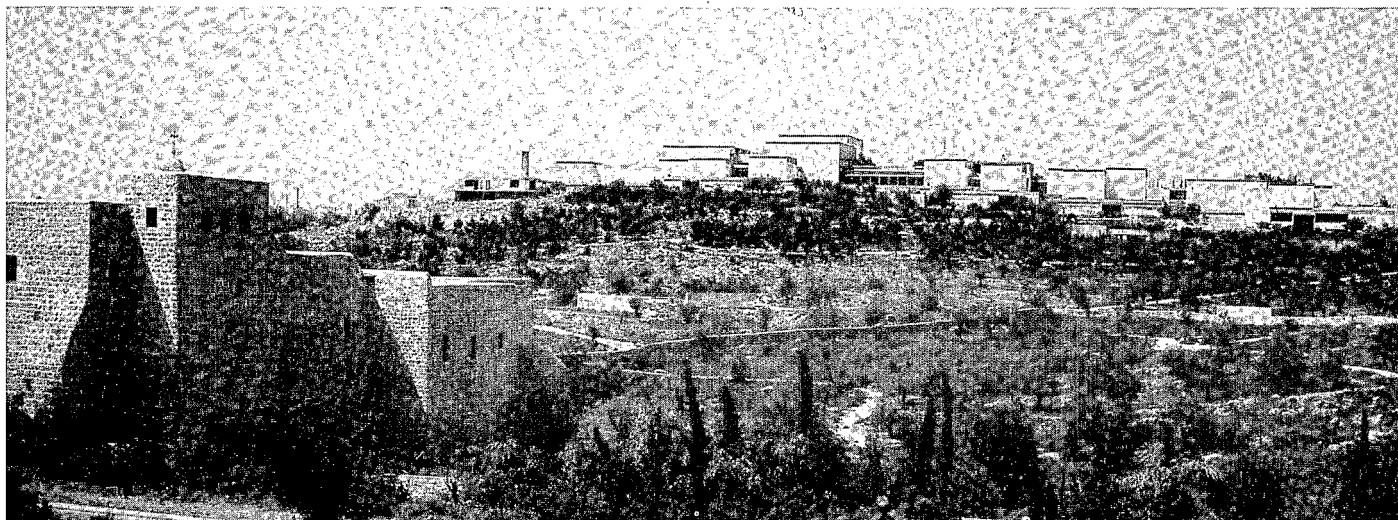
Courtesy of the author

[Translated from Russian]

2. See *Museum*, No. 152 (No. 4, 1986).  
3. See *Museum*, No. 163 (No. 3, 1989).

## The low profile of the Israel Museum

Photos by Al Mansfeld



### A *Museum* report

At a time when the trend (or temptation) is to build museums as monuments standing apart from and often towering above their surroundings, the Israel Museum in Jerusalem is a novel architectural attempt at integration into the environment.

'We did *not* want a solitary monument,' architect Al Mansfeld told *Landscape Architecture* magazine about the museum's prize-winning 1959 plan he designed with Dora Gad, 'but rather a series of relatively small units that could grow into a "village" of interconnected cubes. It would hug the hill in the same way that the ancient villages around Jerusalem merge with their surroundings.'

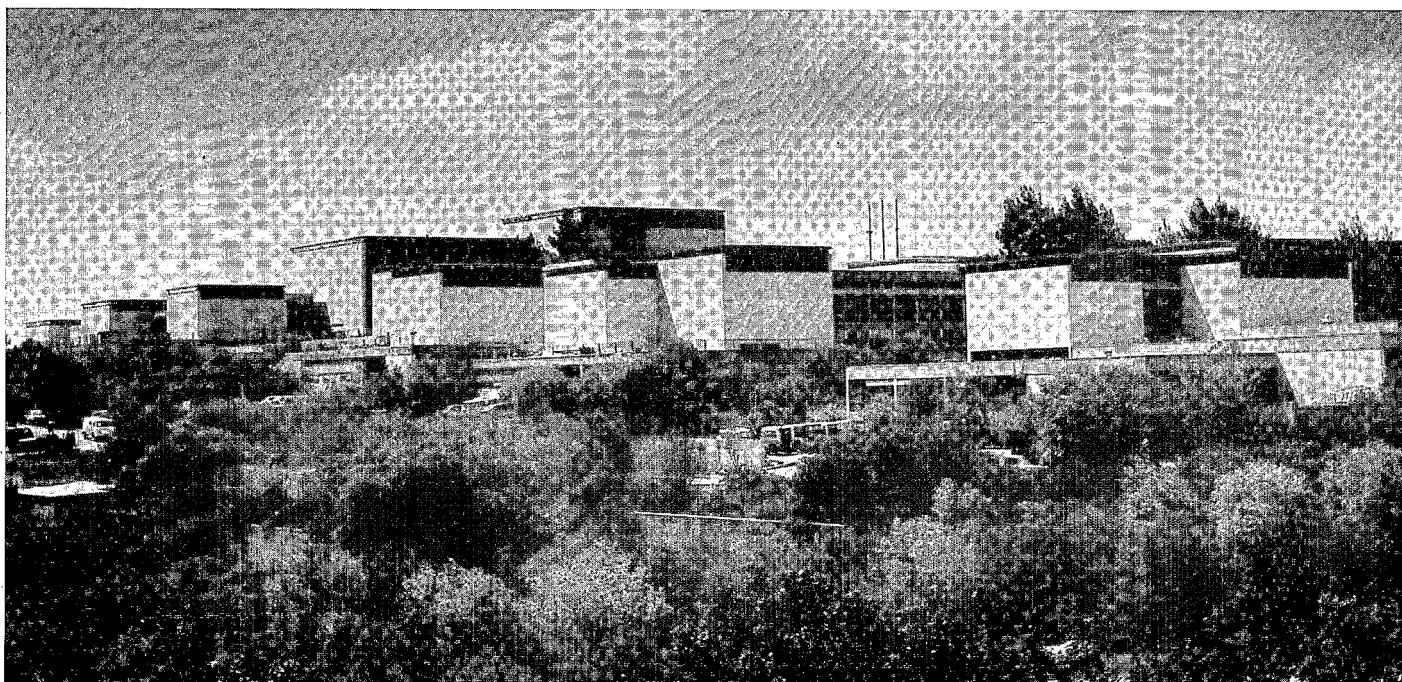
The result is a museum that has both a resolutely modern flair and a literally low profile *vis-à-vis* its architectural and natural setting. Far from overwhelming the nearby Crusaders' Monastery, for example, it complements that twelfth-century complex like a friendly neighbour. It also seems to rise almost organically from the dense groves of venerable olive trees that surround it, and this was not a product of happenstance.

'Quite the contrary,' recalls Zvi Miller of the Miller-Blum firm, which was entrusted with preparing the terrain. 'For once, the building architects and landscape architects worked hand in hand.' Past president of the International Fed-

The Israel Museum and a twelfth-century Crusaders' Monastery—friendly neighbours.

eration of Landscape Architects, Zvi Miller explained to *Museum* that 'in this case, builders and landscapers were not, as sometimes happens, "brothers-and-enemies". The decision to integrate the museum with its environment formed an initial bond of co-operation that lasted throughout the different phases of planning and construction—and, in fact, continued afterwards since the museum has continued to grow over the years as a cumulative, open-ended design.'

The museum rising almost organically from the venerable olives groves that surround it.





# Some controversial cases —the example of France

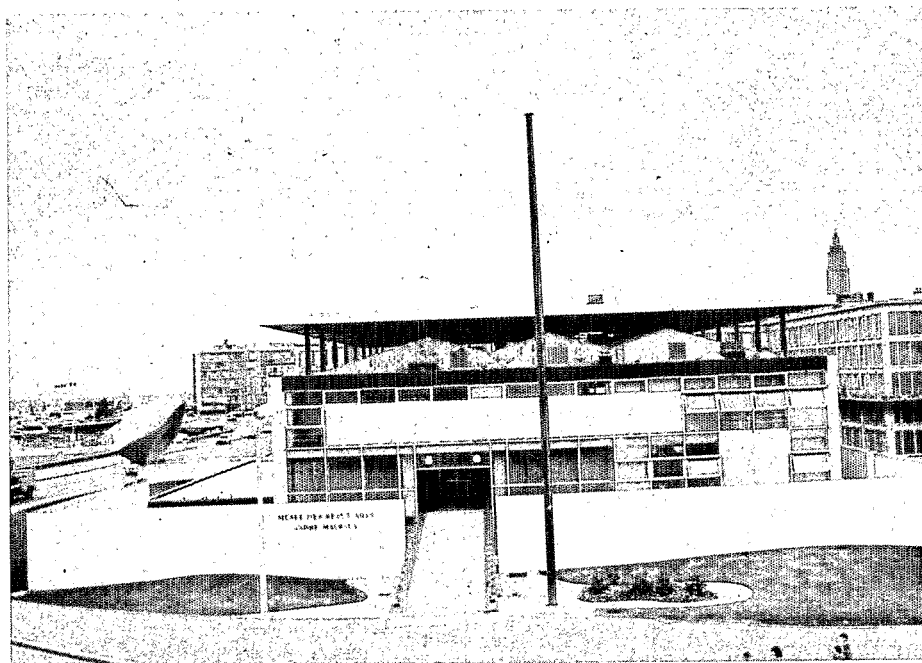
## Dominique Pilato

Born in 1963; holds a Master's degree in the history of art from the Sorbonne, Paris, with a dissertation on 'The Construction and Interior Design of Art and Archaeology Museums built in France since 1960', and a diploma from the École du Louvre. Her professional experience includes work on the Grand Louvre site and with the Caisse Nationale des Monuments Historiques et des Sites, the Musée des Arts Décoratifs, and the *Carnets du Design*.

The construction and interior design of museums has been a subject of inquiry for many years, especially in the Federal Republic of Germany and the United States. In France, however, museum architecture only began to arouse interest with the policy of 'major museum construction works' whose latest developments we have recently witnessed. With the Musée d'Orsay, the Cité des Sciences et de l'Industrie de la Villette, the Institut du Monde Arabe and the Grand Louvre, museum architecture has become a fashionable subject and has received abundant media coverage.

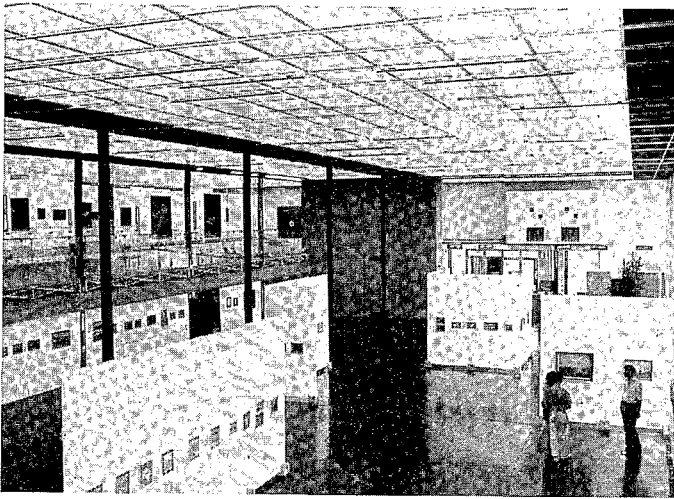
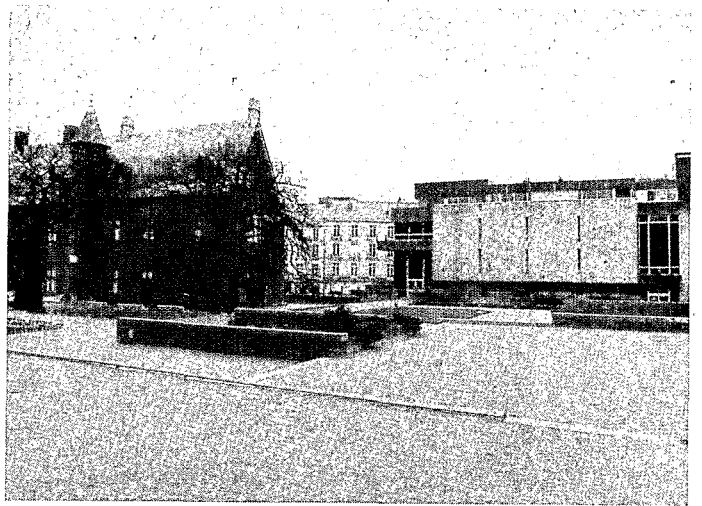
However, all this excitement about museum architecture does not seem to

have affected the museums outside Paris which existed long before the Georges Pompidou Centre; if nothing else, this goes to show the general public's lack of interest in them. Yet a considerable amount of research and experimental work has been going on in the French provinces for many years, and the most prestigious achievements are in fact the fruit of this research. It is perhaps stating the obvious to note the difficulty that some of these museums have in making themselves known and finding their own identity. The fact is that, despite prestigious alterations, some French museums are experiencing serious problems in functioning adequately.



The André Malraux Museum of Fine Arts, Le Havre. Exterior of the museum facing the harbour.

The Museum of Archaeology, Nantes.  
The modern museum exterior, facing the  
fifteenth-century Jean V Manor.



The Interior of the André Malraux  
Museum of Fine Arts, showing the  
permanent exhibition area and the  
mezzanine floor.

Counting the overseas departments and territories, France has nearly 1,400 museums, some forty of which have been built from scratch since the Second World War, or are still under construction.<sup>1</sup> The proportion of new museums in the total number is consequently very small. Only since the 1950s has there been a move to design buildings specifically adapted to the function of presenting and preserving collections and receiving visitors.

The following observations are drawn from the findings of a survey conducted among professionals directly involved in the construction of new museums, such as architects, curators and planners. This research has made it possible to take stock of developments and trends in museum architecture in France and to highlight some of the mistakes or shortcomings of the past thirty years. While these may be acceptable and understandable where old buildings are concerned, they seem in many cases inexplicable when it comes to projects initiated from scratch. The shortcomings pointed out by the curators and museum specialists questioned on the subject are not cited here with a view to stirring up conflict, but in an attempt to learn from the experience of projects carried out between 1960 and the beginning of the 1980s whose architecture continues to arouse controversy.

#### *The first museum-cum-cultural centre*

The former Fine Arts Museum in Le Havre was destroyed in 1944. The new building, designed by the architect Guy Lagneau in 1958, was inaugurated in 1961 and is one of the first examples of a variety of cultural facilities coexisting under one roof. The basically multipurpose character of the museum was decisive in guiding the architectural design. Maximum flexibility was required, with see-through areas which interlock without being entirely self-contained. The building covers a total usable surface of 4,840 m<sup>2</sup>, of which three-fifths are multipurpose exhibition areas. The museum function has therefore been predominant from the beginning. From this stemmed the second guiding principle of the project: flexibility in the treatment of natural overhead and lateral lighting. This determined the choice of a glass and aluminium structure. The frame is in sectional steel, with wind-braces and glass panelling on the main façades. The architects' idea was to obtain flexible lighting by means of the ceiling structure, composed of a combination of transparent and opaque black squares. The squares were to be interchangeable, black ones above the public and transparent ones above the exhibits, depending on the layout of the exhibitions. In practice, this interchange never proved feasible, because of the substantial work involved. The whole museum has an abundant supply of superb natural lighting—

whose praises were sung by the Norman landscape painters of the nineteenth century—but this lighting has little or no modulation, despite the installation of a ‘paralum’ on the roof of the museum. The abundance of lateral lighting means that some of the exhibits have to be viewed against the light. Finally, the glass walls are by no means inexpensive to maintain. The André Malraux Museum of Fine Arts in Le Havre was the first in a long line of buildings which, having done away with walls, have been disparagingly called ‘supermarket showcases’. At the time, its architectural design was totally at odds with the approach advocated by the Directorate of French Museums, which was more in favour of an enclosed space, a protective capsule of a building. The project was, however, acclaimed by the major architectural journals and in 1962 received the Reynolds Prize awarded by the American Institute of Architects, its fame having spread far beyond the frontiers of France.

Paradoxically for a museum, glass walls mean less exhibition space; the Le Havre Museum is a museum without picture rails. To remedy this shortcoming, the paintings on the ground floor were hung on ‘cables’ suspended from the ceiling. Their transparent texture and uncertain stability led the curators to replace them by mobile wooden partitions which could be fixed to the floor, of a kind widely used in the 1960s.

The exhibition hall is composed of a large open space measuring 56 × 32 × 7 metres, divided by two fixed mezzanine galleries (on the north and east sides) and a few steel columns supporting the structural framework. The whole area has been designed from a three-dimensional standpoint, that is, not as an exhibition area but in terms of volume. In its time, it was the first example of an undifferentiated exhibition area in which the itinerary is freely chosen and not predetermined; its affinity with the National Museum of Modern Art (Georges Pompidou Centre, Paris), in the period before 1984/85, is obvious. Today there seem to be second thoughts about this approach to space as an undefined area that leaves the curator free to arrange collections and organize their presentation.

For this museum, and most of the buildings discussed here, the architects had in mind possible changes in the interior layout, but made no provision for extensions: when space runs short, the

museum is doomed to asphyxiation or arrested development.

Situated as it is on the sea front, at the edge of the town, the museum has strong poetic appeal. Against the west façade a monumental sculpture by Georges Henri Adam represents a stylized weaver’s shuttle, a symbol of the transatlantic liners plying between France and the United States. Set in such surroundings, the museum is inevitably caught up in a flow of seafaring activities, the site and the architecture each setting off the other. But while it is splendidly situated, it is far from the city centre, in a residential neighbourhood devoid of activity. The artist’s essentially aesthetic vision has created a museum which is unable to attract the local population.

To sum up, the museum is architecturally superb, with its light and space, but has never been functionally convincing to its users.

### *The treatment of space: a frequent dilemma*

A new building project, ideal though it may be for a prospective study of the interactions between the functions and operation of the facilities it is meant to provide, does not always succeed in solving the problems of treatment of space. The Museum of Archaeology in Nantes and the Departmental Archaeological Museum at Guiry-en-Vexin provide two examples of operational paralysis due to unsuitable premises.

The former was inaugurated in 1975, with little publicity apart from protests by a Nantes painter against the addition of a contemporary building to a museum complex comprising both the Thomas Dobrée Museum dating from the nineteenth century and the sixteenth-century Jean V Manor. An underground gallery links all three buildings. Only a few years after its inauguration, the museum proved to be unusable and had to be closed to the public. A series of errors created the situation leading to this decision:

The museum is unrecognizable as such from the outside. The building has no specific image or identity in the city. The museum was designed with four ground-floor entrances. As there are not enough staff to man the four entrances, only one is open. At the same time, no provision has been made for access by handicapped persons.

The collections are spread over two floors. As visitors are prohibited from

1. Germaine Barnaud, *Répertoire des musées et collections publiques de France*, Paris, Editions de la Réunion des Musées Nationaux, 1982.

using the lift, they have to use the one and only staircase, which makes circulation inconvenient.

There are no directions or signposting inside the museum.

There is no system for controlling the light streaming in from huge windows. Throughout the museum, particularly on the ground floor, the lower halves of the windows have been blacked out by wooden panels—so as to increase the display surface—and the upper halves are hung with venetian blinds to control the light. These arrangements conflict with the original architectural design.

There are problems of weatherproofing and insulation: the temperature is too low and there is no hygrometric control. This has meant that the pre-Columbian collections originally intended for the museum have not been put on display.

Certain areas were set aside for outside terraces, but no allowance was made for a carpentry workshop and a cultural-activities room. Parts of the exhibition area on the first floor have been closed to the general public for use as a workshop and a children's area.

Last but not least, the museum suffers from the fact that its working facilities are scattered over various levels of the three buildings, with the library, secretariat and curator's office on the third floor, the deputy curator's office on the second floor, a second deputy curator's office on the first floor, and the meeting-room on the mezzanine floor. As can be imagined, the dispersal of these premises throughout the museum makes co-ordination very difficult; it would have been more rational to group these complementary activities together.

Would not thorough programming have made it possible to avoid this unsatisfactory distribution of space?

Work on the Guiry-en-Vexin Museum began in 1982, but its curator was not appointed until the end of 1981, in other words, when the architectural design had been approved. The plans were drawn up by non-professionals, and equipment needs do not seem to have been adequately defined. In fact, the museum is organized along the lines of a nineteenth-century museum. No provision was made for either a projection room or a restoration workshop. The latter occupies the space originally intended for the reserves of the temporary

exhibition room. The carpentry workshop has been set up in a corridor, as have activities for schoolchildren. All these arrangements are hidden from public view by various expedients, but they detract from the harmony of the building and the pleasure of the visit. The reserves are too small, which means that the collection of stone objects is stored in the courtyard. The temporary exhibition room has a surface area of only 55 m<sup>2</sup>, and the display units are kit modules. There is only 16 m<sup>2</sup> of office space for four people, which accounts for scarcely more than 1 per cent of the total floor space, only 2 per cent of which is set aside for information and education activities and 48 per cent for display. This means that the museum cannot really fulfil its educational function. Moreover, the exhibition rooms themselves are not large enough. For security reasons, the curator is prevented from installing reconstitutions or casts. The need for additional working areas is patent. Four years after the museum was opened, an extension was already being considered.

Now that museums have become cultural centres, the quality of the technical equipment and facilities is at least as important as that of the exhibition areas. Yet the importance of additional working areas is not always taken into account when the objectives are determined. The presence of a museum specialist, who alone can specify conservation needs, is essential at this stage.

### *A museum in a shopping centre*

At the end of the 1950s, the municipality of Marseilles decided to build the Centre Bourse (shopping centre, offices and a residential building covering 40,000 m<sup>2</sup>) between the main Canebière thoroughfare and the Old Port.

In 1967, archaeological discoveries brought construction work to a halt. Excavations continued for ten years, culminating in the listing of an area of nearly a hectare as a protected site. It was here that the remains of a Roman vessel dating from the third century A.D. were discovered. In 1977, the Centre Bourse was inaugurated. On the ground floor of the shopping centre an area set aside for an undefined cultural purpose, possibly a cultural centre, was finally allocated for the construction of a museum, the Museum of History of Marseilles. The museum had to be fitted into an already built-up area. The first section, of

4,000 m<sup>2</sup>, is devoted to the origins of the city in ancient times; a second section is planned for the medieval and contemporary periods. Meanwhile, the excavation site has been laid out to receive visitors. The museum, with its broad expanses of glass, opens out onto the archaeological garden, thus emphasizing its character as a site museum.

The museum is unique—and is the only example of its kind in France—in being incorporated into a shopping centre. One of the shops on the mall was purchased and so arranged as to provide direct access to temporary exhibitions. The idea was to attract shoppers to the museum. One of the driving forces behind the project was the firm determination to get away from the museum as a consecrated institution. The educational function is reflected in the distribution of the floor space: 29 per cent of the total surface area is set aside for exhibition purposes and 23 per cent for cultural and educational activities.

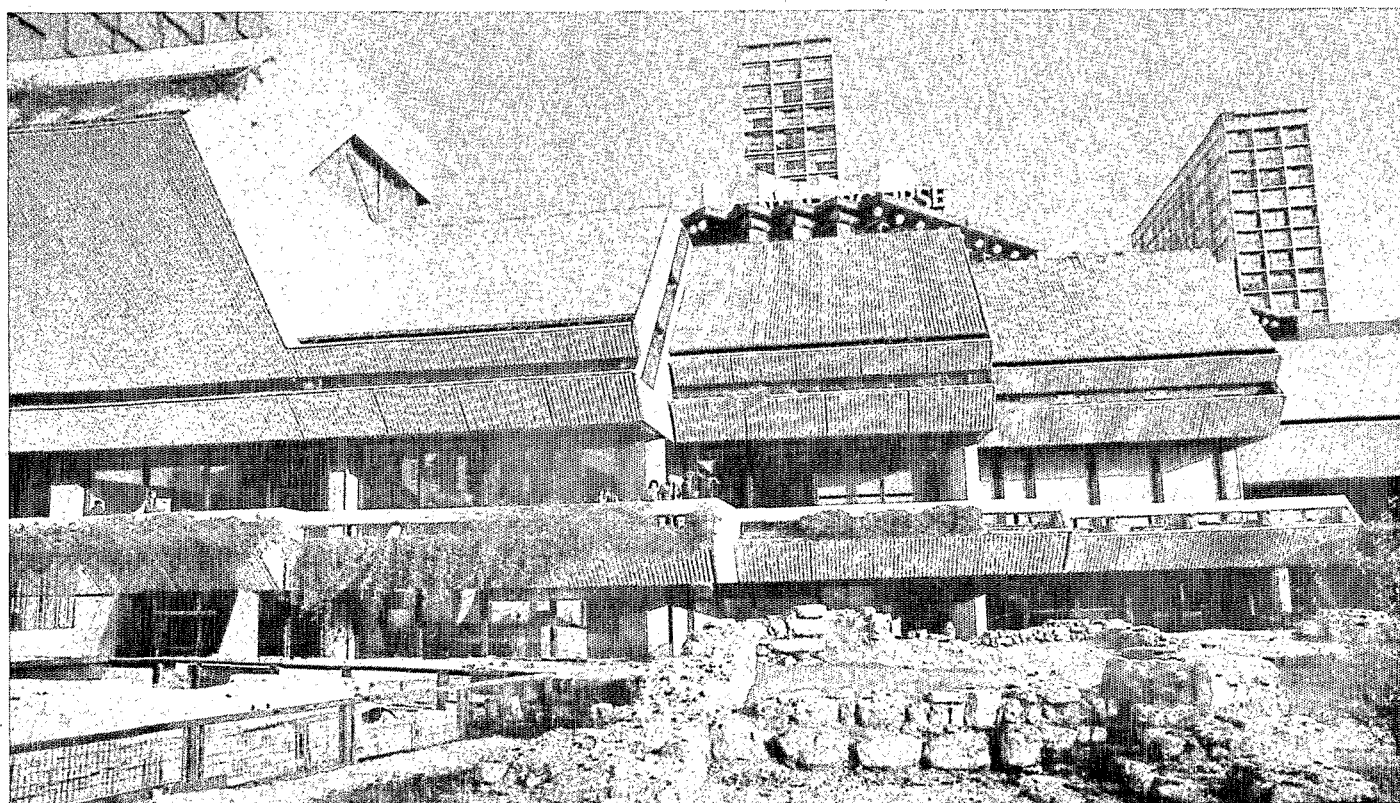
Despite these good intentions, the functioning of the museum is hindered by the fact that it has been difficult to fit it into a space which was not designed to house a facility of this kind. The display area is composed of disparate interlocking compartments without any real unity. They were difficult to arrange, and this has led to a waste of space. As in Nantes, there is inadequate interaction between some of the museum's func-

tions. The reserves are too small, and to reach them it is necessary to go through part of the museum, the entrance hall and the library. Although it would be a vital facility, there is no real restoration workshop. By contrast, the entrance hall is too large—over 300 m<sup>2</sup>. As there is no system for controlling access to the museum (for which an entrance fee is charged) via the temporary exhibition room (to which admission is free), the gallery linking these two areas has been closed off. The layout of internal space is still a problem peculiar to certain new buildings.

### *In Orleans, the new museum goes unnoticed*

The Museum of Fine Arts in Orleans was built as part of the project for the rehabilitation of the centrally located Place Sainte-Croix. The plan was to flank the cathedral, on the southern side, by the regional council building and the prefecture annexes and, on the northern side, by the museum adjacent to an annex of the municipal offices. The cathedral is thus surrounded by a complex of administrative buildings, deserted after 5 o'clock in the afternoon—a no-man's-land resulting from the demolition of several old buildings, including a block of houses some of which were listed as protected buildings. The construction of the new museum was subordinated to a vast urban development project. Its external

The Museum of History of Marseilles. View of the site showing the archaeological garden and the Centre Bourse.



architecture was designed without any genuine regard for the need to adapt an institution of this kind to its urban function.

A competition organized by the municipality was won by Christian Langlois, chief architect of the Senate House in Paris. His project provided for a single façade design for all the buildings around the square, including the museum, in order to stress the unity of composition. To avoid offending conservative local taste, Christian Langlois opted for conformity to the main features of classical architecture. His reconstitution, prompted by a concern for overall harmony, is faithful down to the last detail: a freestone façade, a gallery with arcades at street level, rectangular windows, strictly rectangular lines, corner pavilions and slate roofing. There is nothing to distinguish the museum from the other buildings, and indeed it passes unnoticed in the Place Sainte-Croix.

The interior layout of this new building raises the same problems as all rehabilitated monuments. Museography has had to submit to the constraints of a given space, and not the reverse. The interior design was entrusted to the architects Pierre Sonrel and Jean Duthilleul.

Inaugurated in May 1984, the new Orleans museum is one of the most important museums outside Paris—a built-up surface area of 8,000 m<sup>2</sup>, superb

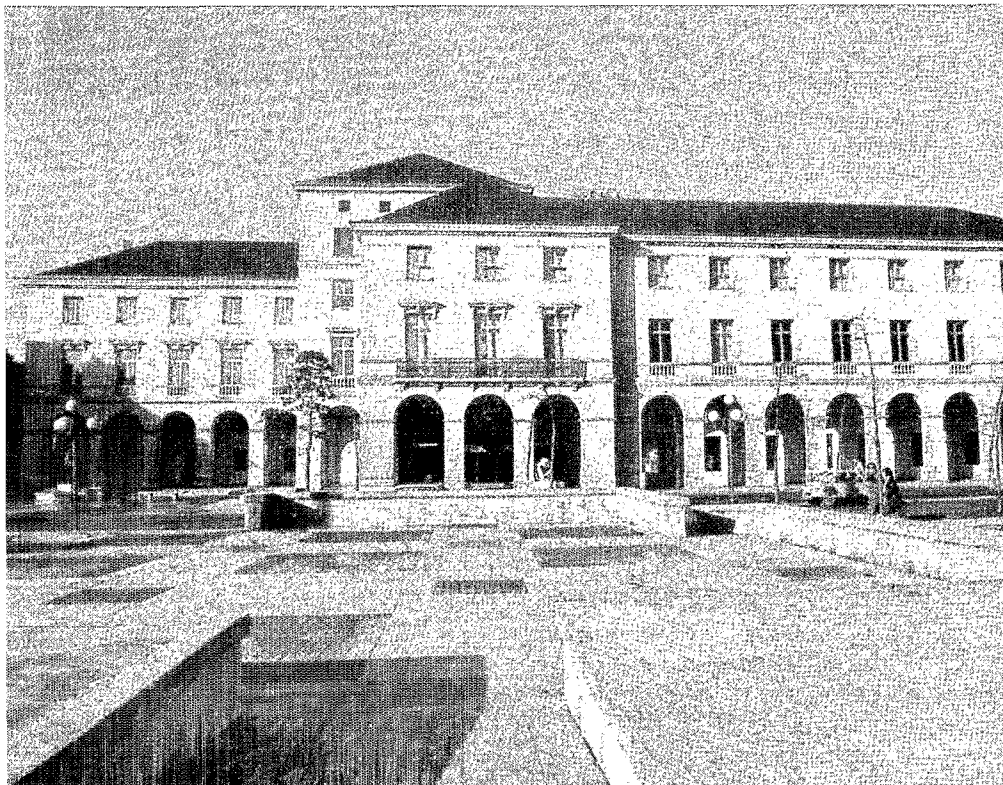
collections from the Middle Ages to the present day, displayed on five of the seven levels of the building, a full range of ancillary facilities (reserves, a lecture hall, a documentation centre, a library, etc.), a well-defined itinerary, starting from the top on the second floor, accessible by a lift, and proceeding down to the lower levels, with efficient signposting inside the museum.

The architects' self-imposed design of the façades has, however, interfered with the internal organization. There is no need for a plethora of windows in a museum in which paintings by Old Masters predominate. As the symmetry of the rows of windows governs the location of the floors, the architects had to provide for the insertion of split-levels to offset the strictly determined height of the intervening areas and so gain additional floorspace. Christian Langlois wanted no alteration in the design of the ground-floor arcades to install a loading-bay; objects have thus to be unloaded out-of-doors, with the inevitable security problems involved. Finally, there are no relaxation areas (cafeteria, bar) in the museum, though this would have been an asset for a project of this size and would have provided a focus of conviviality in a square where it is sadly lacking.

These few examples highlight the sometimes difficult relations between architects and curators. The rivalry stems from mistakes made after the Second World War, which were partly due to a lack of any precise regulations concerning museums. To that may be added each side's ignorance of the other's profession. The subject itself is a seed-bed of conflict between scientists complying with precise rules for conservation and at times reluctant to accept new ideas, and architects prompted by equally legitimate aesthetic concerns. A thoughtful prospective consideration of the issues involved, conducted jointly by both parties, would have been the only way of reducing misunderstandings and building up the confidence needed for the success of the projects undertaken. ■

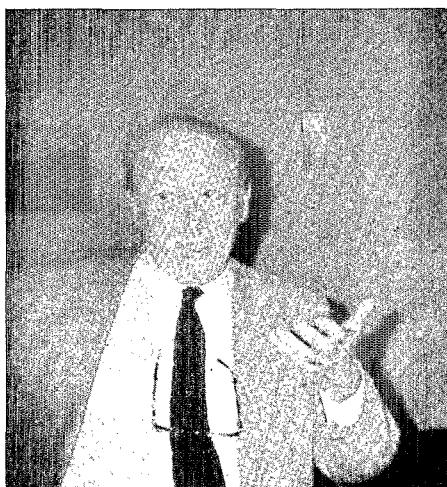
*[Translated from French]*


The Museum of Fine Arts, Orleans.  
Exterior showing the main façade.



# Museum architecture in Latin America: what future?

An interview with Jorge Gazaneo



Jorge Gazaneo, Argentina, is an architect and the Director of—and professor of post-graduate design at—the Centre for Conservation of Urban and Rural Heritage at the University of Buenos Aires, Director of the Centre for Advanced Studies in Conservation at the University of Belgrano, Treasurer of ICOMOS, three-term Vice-president of ICOMOS for Latin America, and past President of the World Heritage Committee. He also has more than a decade of close cooperation with museums to his credit. He seemed, then, a logical ‘museum ally’ to ask about the future of museum architecture in his part of the world. 

*Museum:* What are some of the main trends in museum architecture in Latin America that you would like to see strengthened?

*Jorge Gazaneo:* Like most of the world, we are trying to go beyond the mammoth ‘temple’ museum, so typical of the classical concept of the institution—and so unsuited to the present needs of museums and the technologies now able to serve them. I am convinced that we must move beyond the museum designed and built to the greater glory of ... the architect who designed and built it.

*Museum:* How can that happen?

*J.G.:* For one thing, team-work should come to be the norm, not the exception. Specialization—of the architect, the structural engineer, the museologist, the museum educator, the security expert, and so on—is all well and good. But if the specialists don’t work together from the very outset, we are courting disaster.

*Museum:* What kind of disaster?

*J.G.:* Well, in the United Kingdom and the United States there have already been cases of brand-new office blocks turning out to be utterly dysfunctional after as little as five years because the architects were not aware (or made aware) of the rapid evolution of internal communications technologies. The result was that floor and ceiling ducts were soon so clogged with wiring that rebuilding became necessary. The very same fate could befall museums.

*Museum:* How can one go about ensuring interdisciplinary co-operation between specialists who are not used to working together?

*J.G.:* For those already embarked on their careers, it’s not at all easy, although use of programming techniques can provide a good framework.<sup>1</sup> But I think the main place to begin is during the training



Drawing by Julien

of people like architects, museum professionals and so on. I see a real crisis in faculties of architecture, to take but one example. Architects' training doesn't take account of the fact that our world is moving beyond the culture of the machine and into the post-industrial era, where the coming together of architecture and other specializations is absolutely essential. It is simply no longer possible for an architect to cope alone, particularly when the structure to be built is as complex and varied as a museum.

### *Context and scale—hand and glove*

*Museum:* What other developments would you like to encourage?

*J.G.:* Context and scale need to be taken much more fully into account when museums are designed. Latin America is not only a collection of huge urban centres; but there are also vast tracts of space that are sparsely populated—think of Patagonia and the north-eastern part of Brazil—with distances so great as to defy the imagination of most Europeans. In these under-populated but seemingly endless reaches of land, museums can play a vital role in preserving and promoting a sense of history, identity and dignity—and, more prosaically, in maintaining the fabric of everyday life and communication.

Another point about context concerns local building materials. To take a hypothetical example, how would we react if it were proposed to build a glass-and-aluminium museum in one of Argentina's northernmost cities, Jujuy?

The aluminium, glass, air-conditioning equipment, and so on, would probably have to be brought in from overseas, perhaps Europe or North America. Is that really necessary? What about the attractive and time-tested adobe bricks of which much of Jujuy is built? They would be structurally sound, ecologically appropriate and a good deal cheaper, and, if the architect were creative enough, could produce a very beautiful museum indeed.

*Museum:* With no facetiousness intended: would you also advise adobe bricks for a museum in, say, Buenos Aires?

*J.G. [laughs]:* Well, certainly not for Washington D.C.! There, I. M. Pei's new east wing of the National Gallery is a wonderful example of how the architect can take context and scale into account and use modern materials.<sup>2</sup> Pei's build-

ing is wedge-shaped to suit the flat-iron plot of land on which he had to work; its height is in tune with the earlier gallery building next door and with the neighbourhood, of which Pei did a very careful survey, by the way; and its form, while contemporary, in no way contradicts the classical style of the city as a whole.

*Museum:* You have been critical (and self-critical) of architects and their training. What about museum professionals' role in museum architecture?

*J.G.:* Ah, I thought you might be going to ask me that! Well, of course, one can't expect museologists and museographers to understand all the ins and outs and what may seem to be foibles of us architects. What can be reasonably asked of them, however, is that they formulate and explain *from the outset* a very clear idea of what they want their museums to do and how they want them to do it. We need 'clients' who know what they're asking for. We need a hand that is not going to change shape and function every five minutes as we struggle to design and make a glove for it.

*Museum:* A few years ago, you took part in an Argentine scientific expedition that spent four long months in Antarctica. If you had to do that again, what museum would you want to take along with you?

*J.G.:* None, none at all; at least none that I know.

*Museum:* Why?

*J.G.:* Because you can't transplant a museum; you've got, as I've already said, to look at the context first. In the event, there are rock and permanent ice, and temperatures varying from minus ten to minus fifty degrees, not counting the wind-chill factor. There is also the fact that the maximum working period during which the museum could be constructed is only three to four months a year. Another point is that the means of transport—even the giant Hercules aircraft—would severely limit the maximum volume and weight of each structural element that could not be built *in situ* and would have to be brought in.

*Museum:* Our Antarctic museum is beginning to sound like a formidable task. Would you like to be its architect?

*J.G.:* No thank you! The less so since—and I probably should have said this earlier—long before you consider the conditions in which, and the materials of which, a museum is to be built, its message must be defined. Even if its visitors are to be mainly penguins, its message has got to be defined.

*Museum:* Whose job is that?

*J.G.:* Well certainly not the architect's! And, to be frank, I'm not sure I'd leave such a crucial task to museum professionals either, at least not alone.

*Museum:* Who then?

*J.G. [brightening]:* Well, perhaps it should be done by those with a finger on the pulse of public concerns and tastes, I mean by communicators, by people like you.

*Museum:* I thought you said you wanted to avoid—not court—disaster! ■

1. See article on page 233—Ed.

2. See cover—Ed.



# INDIA:

## FROM A PHILOSOPHY OF AGES, ARCHITECTURE FOR TODAY

Charles Correa

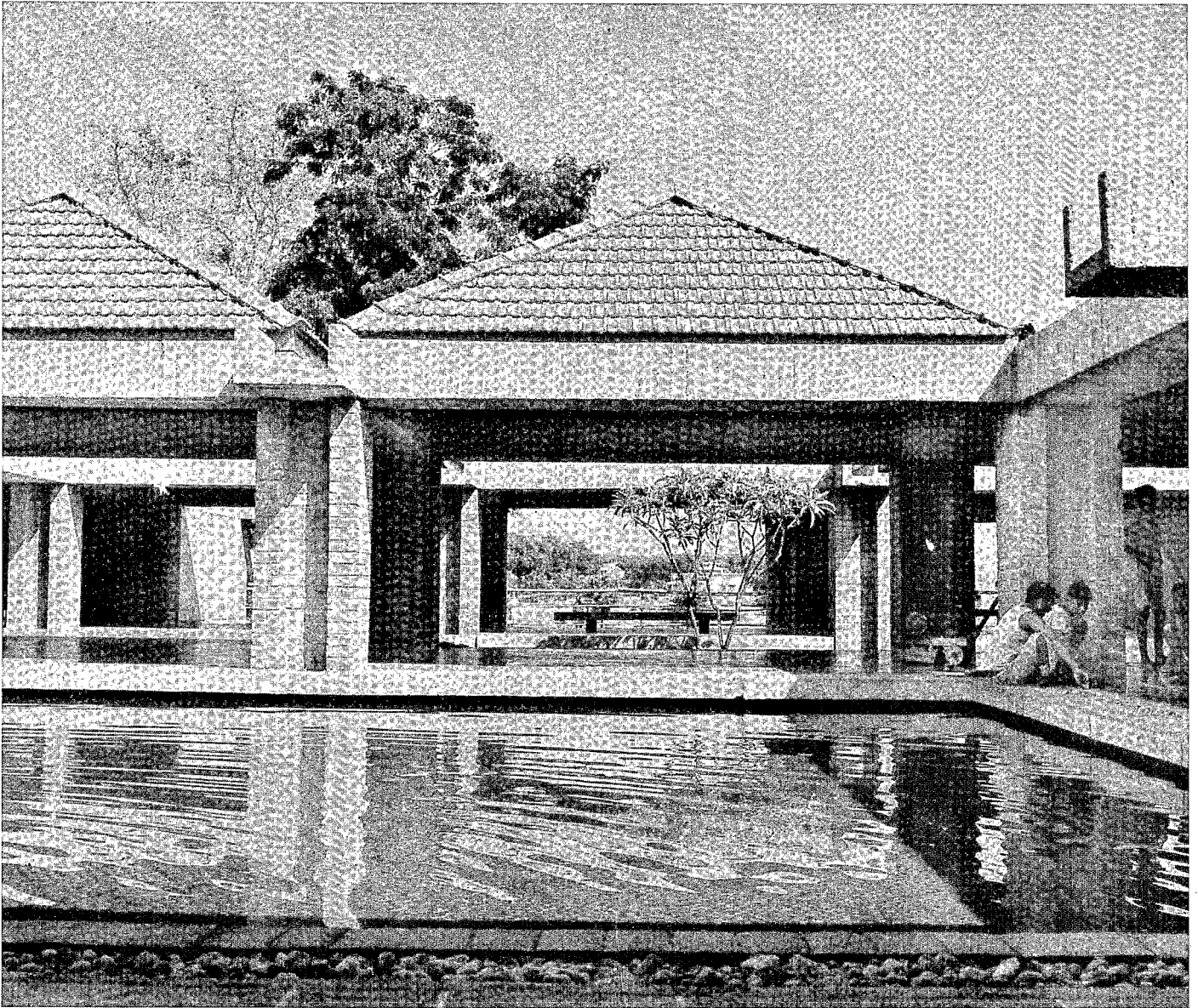
Born in 1930; studied architecture at the University of Michigan and the Massachusetts Institute of Technology; has been in private practice in Bombay since 1958. His work may be seen in various parts of India. In 1974, *Time* magazine nominated him as one of 150 persons around the world in its cover story on new leadership. He was awarded the Padma Shri by the President of India; in 1979 he was made an Honorary Fellow of the American Institute of Architects; in 1980 he was awarded an Honorary Doctorate by the University of Michigan; in 1984 the Royal Institute of British Architects Gold medal by the Prince of Wales; and in 1987 the Indian Institute of Architects Gold Medal.

People living in warm climates develop very specific relationships to their environment. During the day we need but minimal protection, such as a *chhatra* (an overhead canopy); in the early morning and at night, the best place to be is outdoors, under the open sky. When we walk on a beach in the evening, or cross a desert and enter a house around a courtyard, it is the quality of light and the ambience of moving air that form the essence of our experience. At these moments, responses are triggered in our minds, responses conditioned by thousands of generations of life on this planet. Perhaps they are primordial memories of a sacred landscape, of a lost paradise. In any event, they condition very powerfully our perceptions of the environment. Thus while the little red schoolhouse is the educational symbol of North America, in India—as in most of Asia—it has always been the guru sitting under a tree. Not only does this image of the Lord Buddha and the peepul tree seem more sensible to us than sitting inside a stuffy box; it also appears far more conducive to enlightenment.

Religious ceremonies in Asia have always emphasized these open-to-the-sky spaces, and the quasi-mystical sensations they generate within us. Hence, while the cathedrals of Europe (like the little red schoolhouse) are all variations of

the closed-box model, the great Islamic mosques in Delhi and Lahore are at the other end of the spectrum: they consist mainly of large areas of open space surrounded by just enough built forms to make one feel 'inside' a piece of architecture. So, too, the great Hindu temples of southern India are experienced not just as *gopurams* and shrines, but as a ritualistic movement through the sacred open-to-the-sky spaces that lie between them. This movement, called the *pradakshina*, is a pilgrimage around the inner sanctum. In the example of the Buddhist stupas, this *pradakshina* takes the form of a circular pathway around the central stupa—which is a dome structure of solid earth; in the centre of which is buried a wooden column representing the *axis mundi*.

This ying-yang relationship (open-to-the-sky space surrounded by solid built-forms, and vice versa) generates figure/ground patterns in which the open spaces can act as areas of visual rest between the enclosed volumes—a principle of enormous potential for museums. For not only does this pattern create the opportunity to provide a combination of concentration and relaxation, it also opens up the possibility of offering the visitor alternate paths through the various sections of the museum. As we are all aware, many visitors to large museums are



interested in only a portion of the material; yet they have to drag their weary feet through endless corridors to reach the particular collection in which they are interested. In fact, since a major cultural centre like the Louvre, in Paris, actually consists of several large-size museums strung along in a row, like pearls in a necklace, why could not these units be organized in a manner which allows independent access to each one? Furthermore, if the open-to-the-sky space is conceived as a pedestrian spine, then the spectrum of choices available to the visitor can be maximized—and experienced with delight!

These various ideas have gradually coalesced in my mind over the years into a particular typology of museum architecture, one which seems to have considerable advantages in the Indian context. It is illustrated here by four projects. The first, a Memorial to Ma-

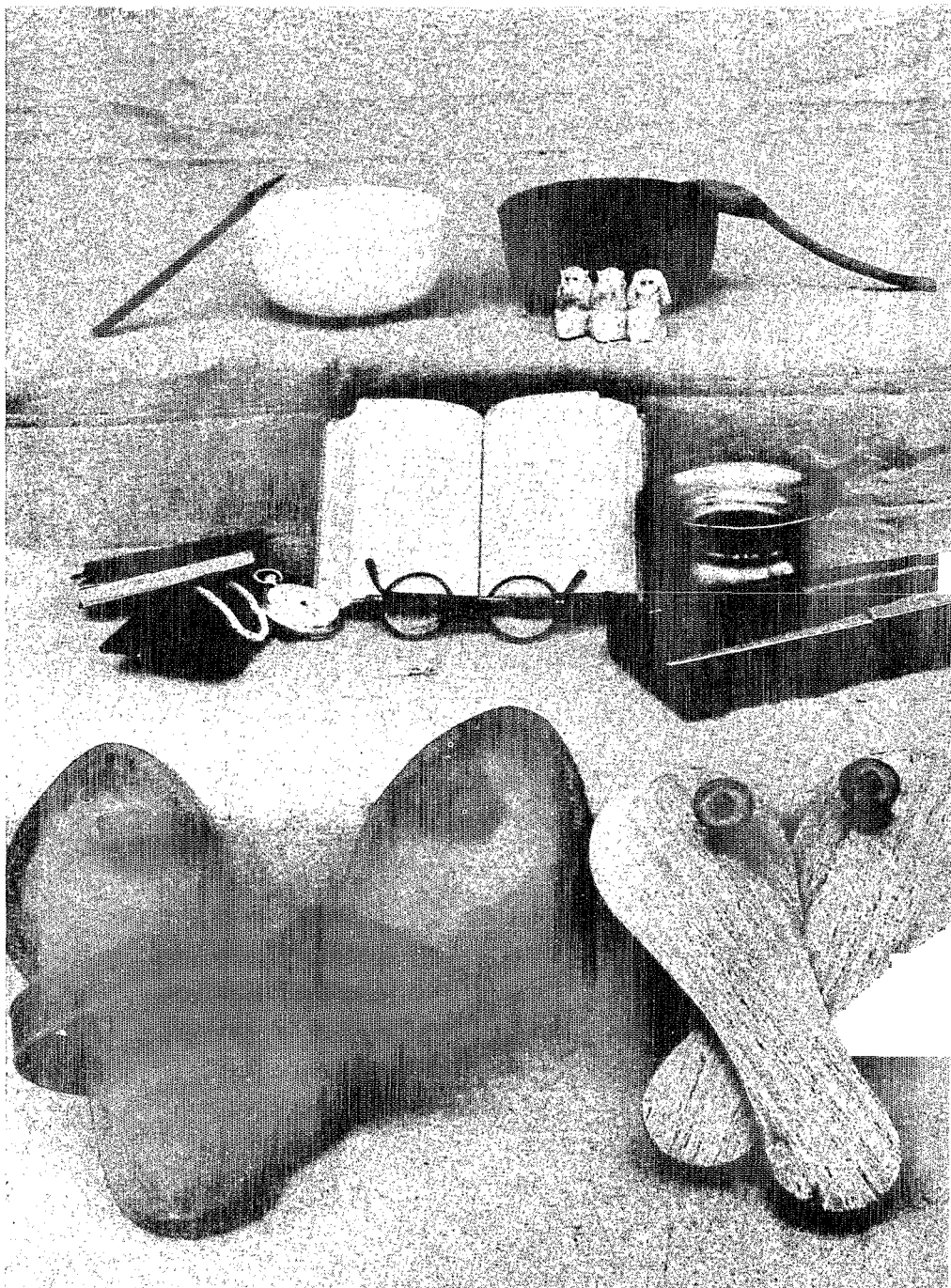
hatma Gandhi at the Sabarmati Ashram at Ahmedabad where he lived, was designed thirty years ago and was seminal to my conceptualization of this process. The second, Bharat Bhavan (a museum for the visual and performing arts in Bhopal), carries the theme further. In the third, the Crafts Museum in Delhi, the pedestrian path has become literally a metaphor for the Indian street as it moves from village to temple to palace. The fourth, the Jawahar Kala Kendra in Jaipur, reassembles these ideas within the parameters of the ancient Vedic concept of architecture as a model of the cosmos.

*Homage and treasure trove  
(1958-63)*

This memorial museum is erected in the Ashram where Mahatma Gandhi resided from 1917 to 1930 and from which he started on his historic march to Dandi.

Gandhi Memorial Museum: open modular units around the watercourt.

Mahatma Gandhi's last possessions.

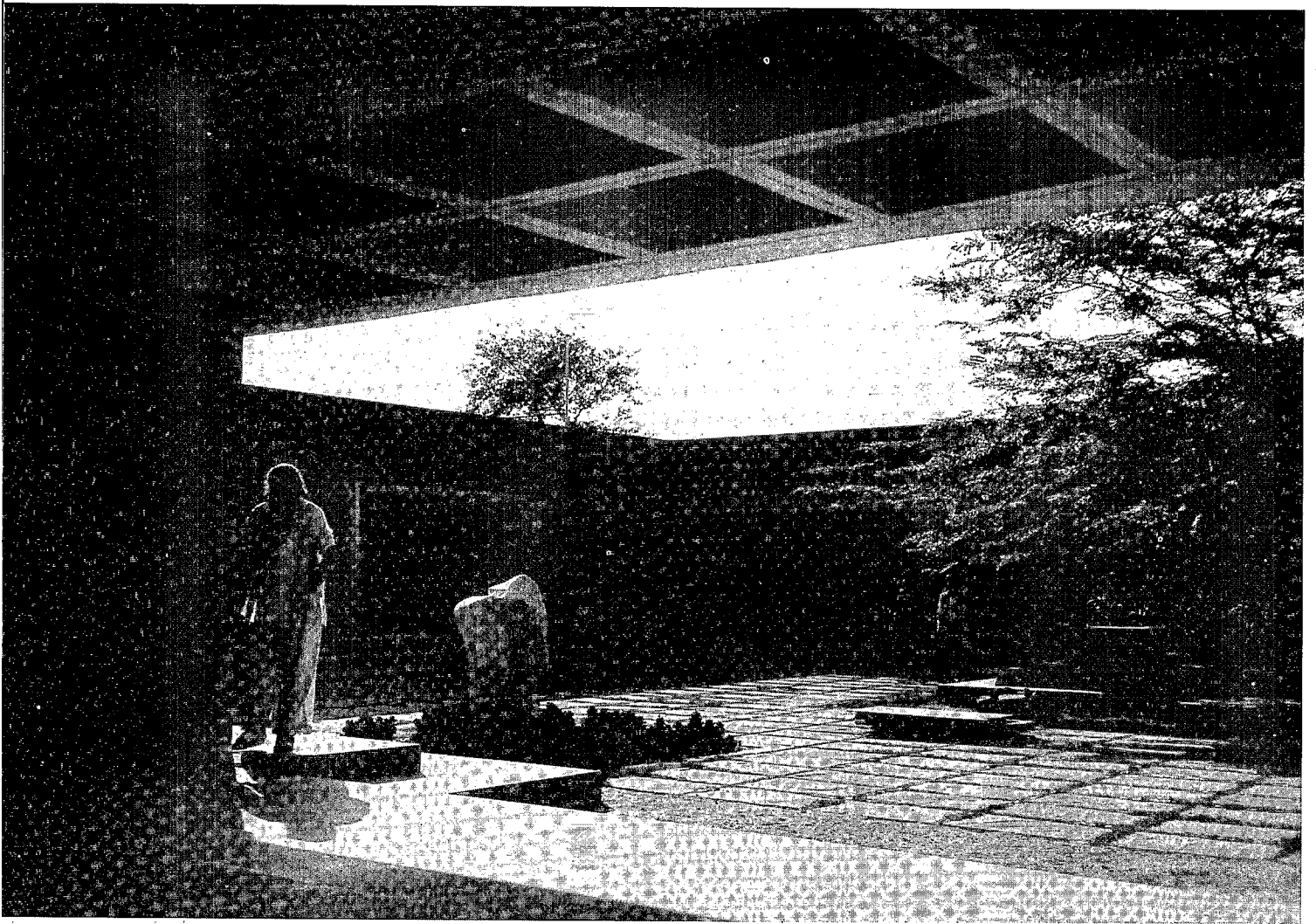


Built by the Sabarmati Ashram Trust in homage to the memory of the Mahatma, and to propagate his ideas, the Sangrahalaya was inaugurated in 1963 by Jawaharlal Nehru. In it is housed a priceless treasure trove of letters, photographs, and other documents which trace the freedom movement launched by Gandhi, including hundreds of volumes edited by his secretary, Mahadev Desai, as well as the 30,000 letters written by Gandhi or addressed to him, some original, others on microfilm.

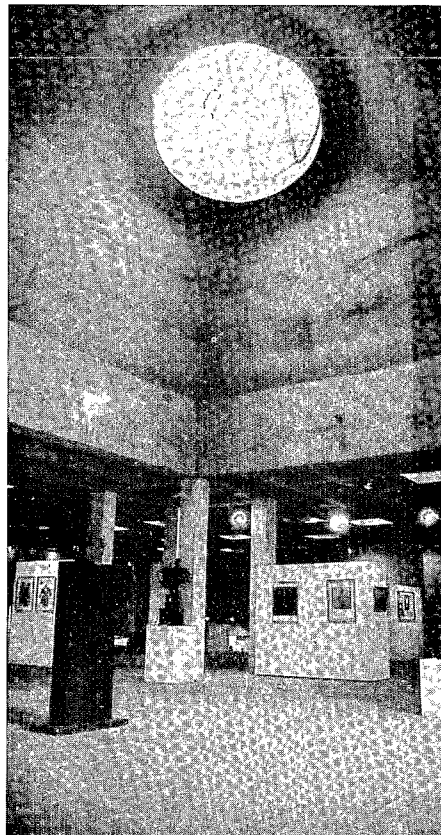
The materials used in the construction are similar to those in the other buildings in the Ashram: tiled roofs, brick walls, stone floors and wooden doors. The only addition is the concrete channel that acts as beam and rainfall conduit, and which permits expansion for additional construction to be added in future. No glass windows are used anywhere in the building (in deference to Gandhi's rejec-

tion of modern industrialized products), light and ventilation being provided by operable wooden louvres.

These elements combine to form basic modular units 6 x 6 m, in a typology analogous to the villages so central to Gandhi's thinking. They are grouped in a casual meandering pattern, creating a pathway along which the visitor progresses towards the centrally situated water court (refreshing in the dry heat of Ahmedabad). Some of the units are enclosed by walls; the various display-cum-study places so created being counterpointed by areas of visual rest where the visitor can meditate. This configuration generates a wide spectrum of conditions, varying all the way from closed-box to open-to-the-sky, the modifications from one zone to another along the spectrum being signalled by subtle and almost imperceptible changes in light and air movement.



Bharat Bhavan: the courtyard.



Bharat Bhavan: the Gallery of Modern Art.

Because the collection will, by its very nature, be added to in time the Sangrahalaya is a living structure which can grow and modulate. Recently, more units were added, extending the pattern. This process will continue as more photographs, letters and other documents are collected, each generation of young Indians making its contribution and paying its homage to the Mahatma.

*Progressing casually (1975-81)*

The site for this arts centre is on a gently sloping plateau overlooking the lake at Bhopal. The natural contours of the site have been used to create a series of terraced gardens and sunken courtyards—off which are located a number of cultural facilities. These cover a wide spectrum and include a museum of tribal art, a library of Indian poetry (in all the seventeen major languages), galleries for contemporary art, workshops for lithography and sculpture and a studio for an artist-in-residence. In addition, Bharat Bhavan houses a fully fledged theatrical

Crafts Museum: exterior of a *haveli* from Gujerat.

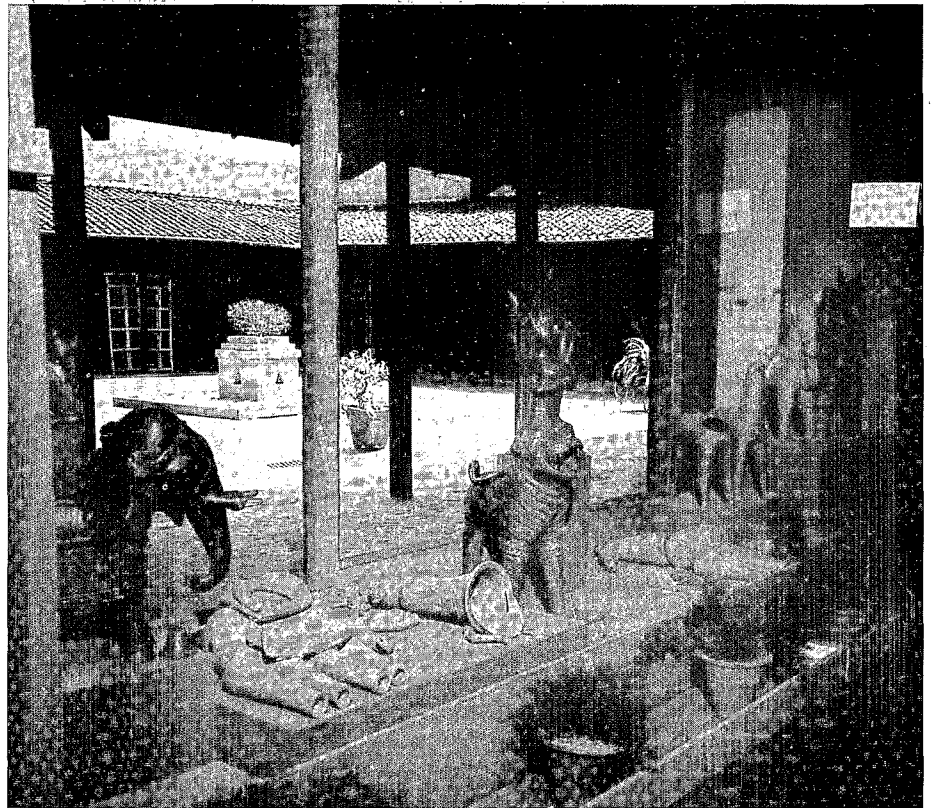
repertoire company and extensive facilities for the performing arts, including the *antarang* (indoor auditorium) and the *bhairang* (open-air amphitheatre) overlooking the lake.

As one progresses through the terraced gardens and courtyards, one comes across these various facilities in a casual manner, making them easily accessible to the citizens of Bhopal. Illumination and ventilation within the building are provided by overhead lights from the concrete shells and from slots along the terrace parapets. In addition, the openings onto the courtyards and terraces have two sets of shutters: the inner ones consist of a combination of glass and hinged panels for ventilation; the outer ones consist of large wooden doors, closed at night for security.

#### *As varied as India (1975)*

The great temples of the past (at Bali, Borobudur, Srirangam, etc.) were structured around sacred open-to-the-sky ceremonial pathways, a concept, as





Crafts Museum: a display of terracotta figures.

mentioned earlier, of crucial relevance to architecture in warm climates. This Crafts Museum, casual and accepting of the artisan's vernacular, is organized around such a central *pradakshina*. As one travels down this veritable spine, one catches glimpses of the principal exhibits displayed on either side, e.g. the Village Court, the Temple Court and the Darbar Court. One can visit any particular exhibit or, alternatively, progress through all the various sections in a continuous sequence.

At the end of the sequence, one exits via the roof garden, which forms an amphitheatre for folk dances, as well as an open-air display area for large terracotta horses and other handicrafts. The images of these scaleless non-buildings echo the old bathing *ghats*, such as those at Varnasi, or at the incomparable Sarkhej in Ahmedabad.

The initial stage of the Crafts Museum was completed in 1977. The final stage is currently under construction. In it, ancient buildings of extraordinary merit (for instance, an old wooden *haveli* from Gujarat and a stone temple from Tamil Nadu) are being incorporated into the new construction to make the architecture a collage as varied and pluralistic as India herself.

#### *Model of the cosmos (1986- )*

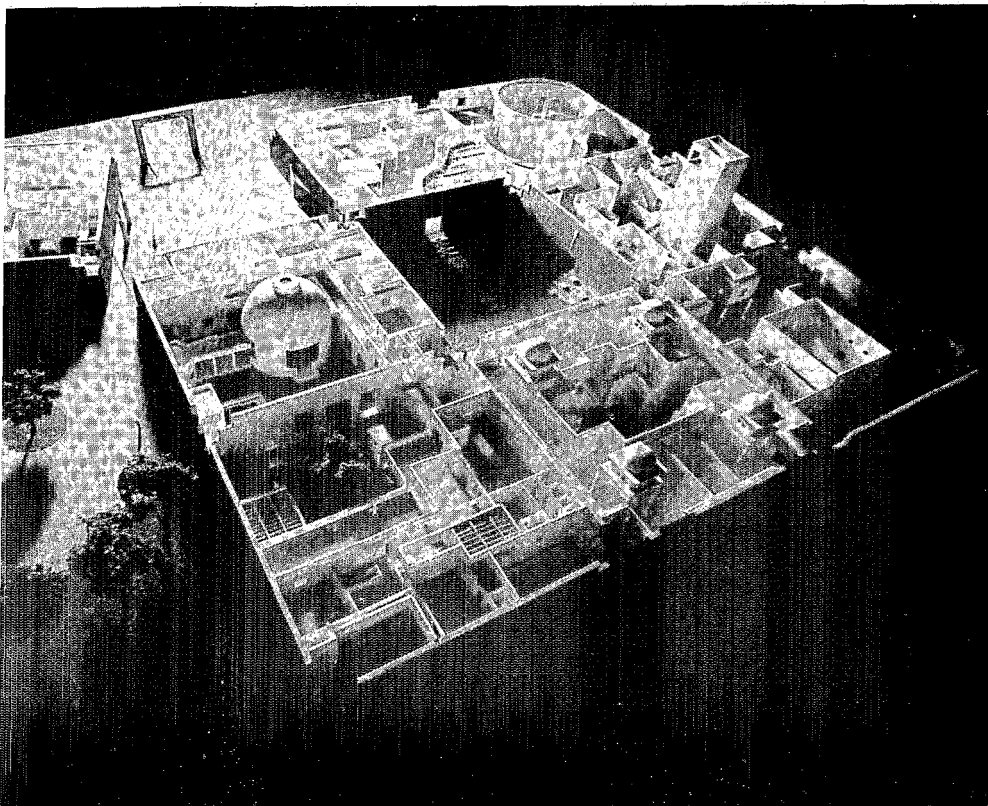
This museum-cum-cultural centre for the city of Jaipur, dedicated to the memory of India's great leader Jawaharlal Nehru, is based on the ancient Vedic concept of architecture as a model of the cosmos. These mythic beliefs, which go back thousands of years, perceive the forms and events which constitute the visible world as being significant only to the extent that they help us understand the non-manifest layers that lie beneath. Magic diagrams, called *yantras*, explain the true nature of the universe. Of these, the *vastu-purush-mandalas* form the basis of architecture. Thus buildings are conceived as models of the cosmos—no less!

Each *vastu-purush-mandala* is a perfect square, subdivided into identical squares, creating a series which starts from 1 and goes on to 4, 9, 16, 25... right up to 1,024. In temple architecture, the most commonly used *mandalas* are those of 64 and 81 squares, with the various deities allocated places in accordance with their importance and with the mystical qualities inherent in the diagram. The *mandala* is not a plan; it represents an energy field. Its centre signifies both *shunya* (the absolute void) as well as *bindu* (the world seed and the source of all energy). In all *mandalas*, at this centre is located *Brahmana*, the

Supreme Principle. According to Hinduism, when the cycles of reincarnation are finally over, and the *atma* (individual soul) is released from each one of us, it goes to *Brahmana*, that is, to the centre of this energy field.

The analogy to the black holes of contemporary physics is truly astounding. Energy devours itself, and the individual soul (after completing all the cycles of reincarnation) goes not to an eternal reward in Heaven or in the Garden of Paradise, but down the vortex at the centre of the black hole. How incredible that such a concept should have surfaced so many thousands of years ago. As Bachelard has pointed out, the intuitive insight of the artist (or for that matter the seer) cannot be explained through the cause-and-effect structure of scientific reasoning, but, like a depth-charge, explodes in the centre of our being, releasing to the surface the debris of our unconscious.

Jaipur is a city built in the seventeenth century by the astronomer king, Maharaj Jai Singh. The master plan is based on the Navgraha, a *vastu-purush-mandala* of nine squares. In this unique city, Jai Singh embarked on a truly extraordinary adventure. He sought to combine his passion for two of the most powerful myths he knew: on the one hand, ancient and sacred yantric beliefs; on the other, the latest tenets of contemporary science.



Jawahar Kala Kendra: a model showing the nine squares.

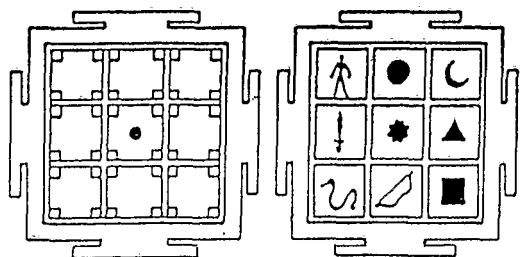
Hence his choice of the nine-square *mandala*, corresponding to the *navagraha* of the nine planets. The void in the central square he used for the palace garden, and because of the presence of a hill, a corner square was moved diagonally across.

The plan of the Jawahar Kala Kendra invokes directly the original *navagraha mandala*. One of the squares is pivoted to recall the shift in the original city plan (and also to create three entrances). The functions of the museum are disaggregated into nine separate groupings, each one corresponding to the mythic qualities of that particular planet. For instance, the library is located in the square of the planet Mercury which tra-

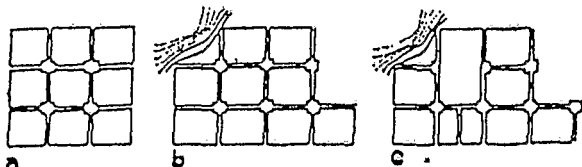
ditionally represents knowledge; the theatres are in the house of Venus, representing the arts; the central square, as specified in the ancient Vedic Shastras, is a void, representing the nothing which is everything. The external walls of each square are sheathed in red sandstone, in which is inlaid a white marble symbol of the corresponding planet.

Each one of these nine squares is 30 x 30 metres, defined by a masonry wall eight metres high. It is totally autonomous, connected to its neighbours only by doorways aligned centrally along the main north-south and east-west axes. This allows each of the squares to have its own archetectonic expression,

true to its symbolic meaning and its function. Organizing construction on these principles allows considerable flexibility, since the contents of each square in the *mandala* can be designed—and constructed—at different points in time, which is a distinct advantage in the stop-go context of the Indian economy. The construction is of masonry walls with columns and slabs. Expansion joints run between the various squares, which allowed construction of the project to be undertaken simultaneously by three separate contractors, each working independently of the others. ■



Ground-plan of the Nat-Mandir in Konarak (left), corresponding to the divisions of the Yantra of the Nine Planets, or Navagraha (right). The symbols of the yantra are: square = Venus; bow = Mercury; snake = Ketu; triangle = Mars; lotus = the Sun, at the centre; sword = Rahu; crescent = the Moon; circle = Jupiter; man = Saturn. After the Mandala Sarvasva.



The plan of Jaipur city based on the nine square Yantra in which one square is displaced and two central squares combined.



New in old: the main entrance to the National Museum inaugurated in September 1988.

# *The Libyan Arab Jamahiriya Museum: a first in the Arab world*

Mounir Bouchenaki

A member of Unesco's Division of Cultural Heritage. Historian and archaeologist, former Chief Curator of the Algerian Antiquities Department. Worked on various sites in the Mediterranean basin. Publications: *Cités antiques d'Algérie* (1978), *Fouilles de la nécropole occidentale de Tipasa* (1976), and a variety of articles in specialized journals.

The National Museum, also known as the Libyan Arab Jamahiriya Museum, was inaugurated on 10 September 1988 in the presence of President Muammar Qadhafi and the Director-General of Unesco, Federico Mayor. The first museum devoted to Libyan history thereby opened to the public represented the realization of an idea conceived by the Libyan authorities almost ten years earlier. The establishment of a cultural institution on this scale, drawing on both national and international skills thanks to Unesco's catalytic role, is a museographical achievement unprecedented in the Arab world.

In the museum, which occupies an area of about 10,000 m<sup>2</sup> and was constructed by the Skanska civil engineering company, the visitor can marvel at the many civilizations that succeeded one another on Libyan soil from the Lower Palaeolithic to the emergence of modern society after the revolution of 1969, and contemplate the rich and extensive collections of the museum of Libyan natural history. All the exhibits are displayed in accordance with the most advanced

museographical techniques, including the use of audio-visual media.

Another original feature is the siting of the museum in the heart of the citadel of Essaraya Al-Hamra (the Red Castle). Only fifty years ago its massive walls dating from the Ottoman era were lashed by the waves of the sea, but since then the coastline has been pushed back several hundred metres by means of modern technology. Having abandoned its defensive role, the citadel, a bastion ensconced in the old city of Tripoli, has been converted into a cultural complex. Its ancient buildings now house a number of specialized museums, storerooms, a restoration laboratory, a library and some of the administrative units of the Department of Antiquities. One may wonder why in 1976 the Libyan authorities, in consultation with experts from Unesco and the International Council of Museums (ICOM), chose the site of the former Italian Museo Archeologico for the establishment of what was then called the National Museum.

Going back in time, we find that during the Italian occupation of Libya a



road was bored through the Essaraya El-Hamra citadel from one side to the other which was sheltered from the sea. A part of the complex of buildings was used as the Governor's headquarters. Later, in 1934, when the citadel's defensive role was no longer considered necessary for the old city of Tripoli, most of the premises was converted for use as a museum. An archaeology museum was built along the newly laid road inside the citadel.

### *An original architectural decision*

The citadel's location in the old city of Tripoli and its position in relation to the modern town certainly had a decisive influence on the choice of site for the Museum of the Libyan Arab Jamahiriya. Overlooking the esplanade and the piers of the harbour, the citadel walls now form one of the boundaries of the famous Green Square, the city's forum and gathering place for all the country's major festivals.

This was the site chosen for the National Museum, in spite of doubts about the adequacy of parking space, which has since been considerably expanded through new developments along the coast on the access route to the citadel. There were also doubts about the appropriateness of the architectural conception, which entailed the construction of a new building in a historical zone, with no possibility of further expansion in the future. Another source of concern was the cost of the project, given the constraints imposed by the nature of the ground in the vicinity of the coast and by the pre-existing buildings. The originators of the project set about devising a most fitting and innovative solution to these difficulties, primarily by turning to account the citadel's exceptional location and the many sites available around the new museum.

Scrupulously following ICOM's recommendations concerning scientific and hence architectural planning, the directors of the national project carried out a great deal of preparatory work between 1976 and 1981, compiling inventories, making collections of objects for the scientific programme, and drawing up architectural plans—in short, working on a conception of a national museum that would be more than merely a spruced-up version of the Museo Archeologico. This new conception was worked out with assistance of Unesco and ICOM specialists.

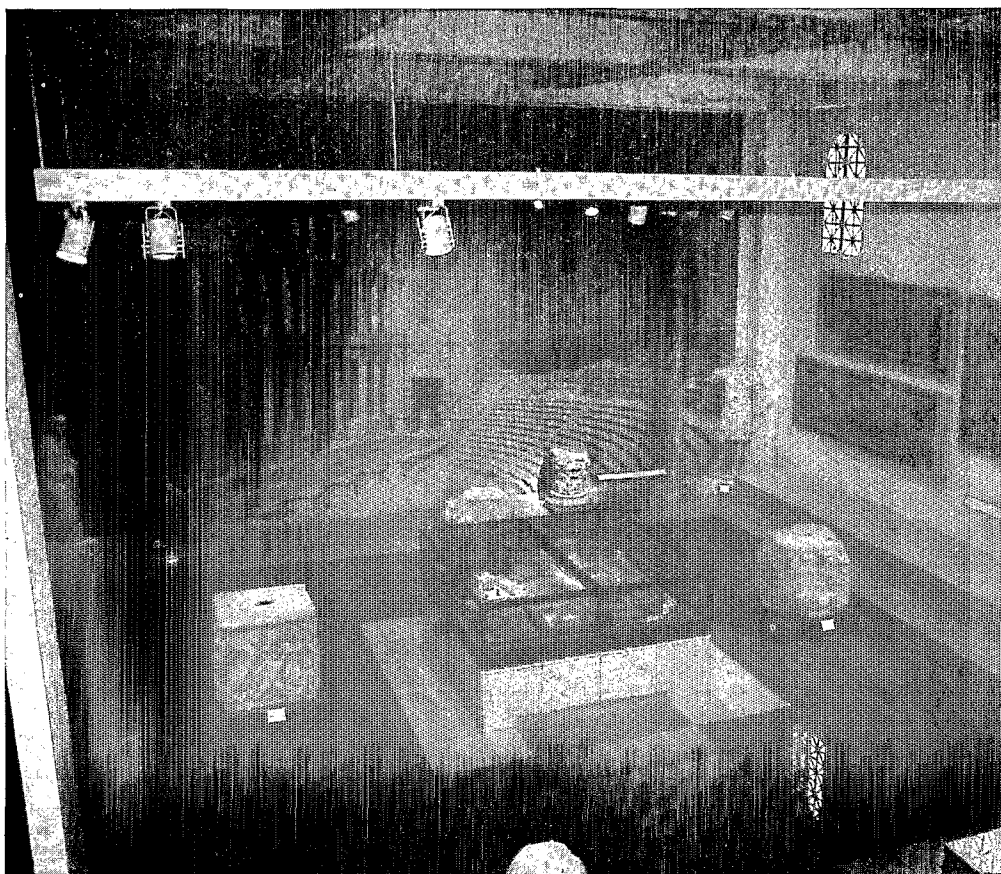


The Ghirza mausoleum, reminder of the pre-Roman Libyan tribes. In the foreground a fountain from the Ottoman period.

The Sabratha Hall, recalling the Punic and Roman site included on the World Heritage List.

As for any museum, the aims were to preserve and display the country's movable cultural heritage. It therefore needed to be a lively place where each visitor could find both recreation possibilities and material for information and learning. Special care was also taken to cater for young people by enhancing the museum's educational dimension. It was therefore designed to serve several different cultural functions, not to forget documentation and research.

The Museum of the Libyan Arab Jamahiriya is a general museum containing not only archaeological finds but also the finest collections from the old Natural History Museum as well as exhibits representing Libyan folk arts and traditions. The decision to juxtapose these different collections obviously influenced the architectural design and interior arrangement of the museum. By using the space available between the two tunnel entrances cut through the citadel walls (the eastern one serving for the main visitors' entrance and the western one for the service entrance and access to the technical installations); the architectural and engineering consultants, Robert Matthew Johnson Marshall and Partners, increased the floor space of the exhibition halls by 2,000 m<sup>2</sup>. The new



museum's exterior matches the appearance of the other buildings scattered around the citadel, and inside it occupies four levels. The ground floor, with direct access from the Green Square through the eastern entrance, consists of a visitors' reception area and a large concourse that serves as a starting and reference point for visits to the different galleries or to the educational centre. This central point is one of the museum's innovations. Its incorporation in the museum was strongly recommended by the advisory committee<sup>1</sup> that monitored the execution of the project from the start of work on the shell right up to the formal verification and acceptance of the completed interior work and the installation of the exhibits. The educational centre, which can accommodate up to fifty children, consists of two halls. Its layout is highly flexible, and its facilities may be used by pupils to carry out various kinds of practical work and to watch films on video monitors.

#### *Already a major attraction*

Another innovation introduced by Higgins Ney and Partners, the firm contracted for interior decoration, is that visitors emerging from the access tunnel find themselves in a spacious hall containing exhibits that are markedly representative of Libyan civilizations. For example, one of the Libyan-Punic tombs at Ghirza has been rebuilt in the hall, stone by stone, and the famous mosaic of Zliten has been set into one of the walls. Beyond the hall the visitor enters a gallery in which there is a specific object to signal each of the

major historical periods. An axonometric plan using a carefully chosen colour system makes it easy to locate the different galleries of the museum, and a large illuminated map of Libya displays the country's great historical sites by means of itineraries and flashing lights.

Visitors therefore have a choice of different circuits. Whichever route they choose will take them through marble-paved rooms where they can admire objects displayed with exquisite taste in terms of design, execution and selection of materials. A complete visit of all the rooms ranges from the display of 30-million-year-old fossilized tree-trunks from Wadi Ajal to that of modern Libyan development projects, with exhibits representing every stage of Libyan history in between. A less exhaustive visit might take in a particular theme or period such as traditional agriculture, the interior decoration of a house in Tripoli or the resplendent decor of a house in the oasis of Ghadamès. The museum's facilities include a conference room with simultaneous-interpretation booths. This room is also used for documentary film shows. The public need not go through the museum to get to the conference room or the large temporary exhibition hall at the mezzanine level (which has already exhibited works by young Libyan artists).

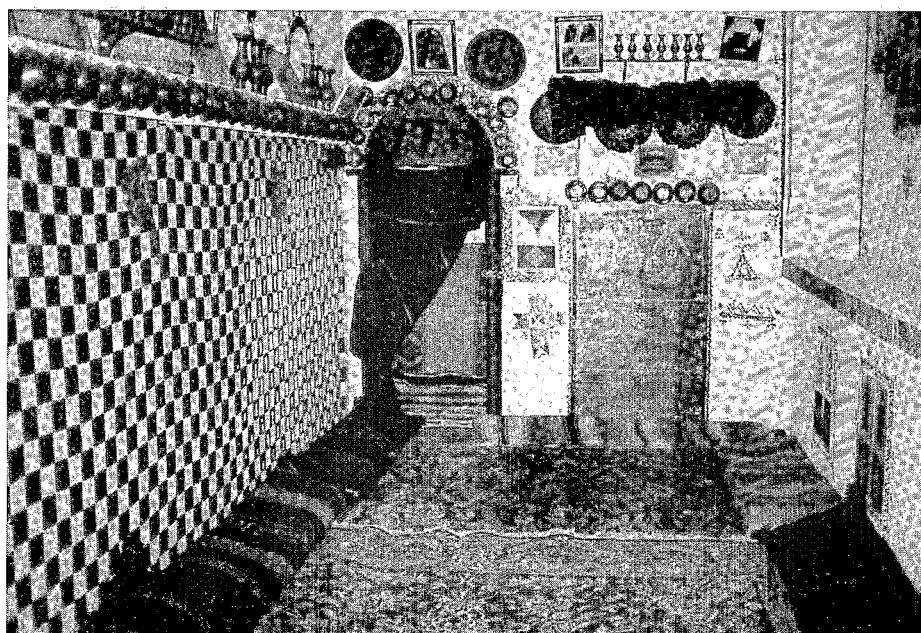
The administrative units are on the fourth floor. The storerooms and a restoration laboratory have been housed in an old building adjacent to the museum. A fumigation room has also recently been set up in the old premises. Within the citadel, corridors and stairs link the old

buildings, which have been converted to serve new purposes, to the modern building which has been slotted in among the patios and covered passages. The whole site therefore constitutes a large-scale museographical entity serving a variety of purposes.

Six months after the official opening ceremony the Museum of the Libyan Arab Jamahiriya had become one of Tripoli's major public attractions. By early March 1989 over 50,000 people had visited the museum. The original style of display, the architectural and museographical integration of a modern building into an ancient setting, the number and variety of explanatory panels in Arabic and English and the use of video monitors in the main galleries showing short documentaries enhance the functioning (and the image) of a modern museum devoted to the history of Libya and of its people. Libyan museologists and their counterparts in other Arab countries and elsewhere would do well to keep an eye on this original experiment as time goes by, to see whether it manages to fulfil the ambitious cultural role it has assigned itself in the city and to what extent it can serve as an example or even a model. ■

*[Translated from French]*

1. A committee set up by Unesco in agreement with the Libyan authorities. Its members were Ms U. Olofsson (Sweden), Professor L. G. Lobato (Portugal), Professor J. Jelinek (Czechoslovakia), Professor A. Daschewski (Poland) and Professor J. V. Corney (United Kingdom).



A reconstitution of the interior of a traditional house from the Ghadamès oasis.

# Programming: a tool that stands the test of time

Patrick O'Byrne

Architect and programmer: four years specializing in operational research (programming, planning, standardization) in Montreal, Canada. Developed the architectural programme of the Georges Pompidou Centre, Paris, then appointed by the French Ministry of Cultural Affairs to co-ordinate, with Claude Pecquet, the programming of several museums, including the Museum of the Nineteenth Century in the Former Gare d'Orsay and the Louvre Museum, Paris, and the Museum of Modern Art, Lille (donated by Masurel). Co-operated in the creation of the Pierre Levy Museum, Troyes. Member of the ICOM International Committee on Museum Security (ICMS).

Claude Pecquet

Museologist and the programmer responsible for the planning of the operational programme at the Georges Pompidou Centre, Paris. Developed the programme of the Museum of the Nineteenth Century in the Gare d'Orsay and the Louvre Museum, Paris, the Pierre Levy Museum, Troyes, the Universities of Bouaké and Khorogo and the Cultural Centres of Yamasoukro (Côte d'Ivoire) and Thann (France). Member of the ICOM International Committee on Museum Security (ICMS). Contributes to the work and publications of ICMS.

Exactly ten years ago, we produced a special number of *Museum* on museum programming. It was divided into two parts. The first<sup>1</sup> clarified the function and importance of programming as the basis preliminary to any design project, whether it be the reorganization or remodelling of an existing museum or the creation of a new one. In the second part, different authors presented actual cases, national and international, of programming applied to museums. We were fortunate to be among those who developed the programmatic approach to the Pompidou Centre project, and have subsequently improved the method's effectiveness through other projects of all sizes, from the Musée d'Orsay and the Louvre to the many small projects of the Fonds Régional d'Art Contemporain (Regional Contemporary Art Fund).

In each case we have been able to confirm the relevance and usefulness of the approach, both to large and complex projects and small simple ones, because programming is simply the logical necessary thinking that must precede any project. What should be done? For whom? How? What means are available? These are the questions that the programmer must adequately answer.

### *Optimism/pessimism*

Needless to say, if this were simply a case of common sense anyone could programme; but there is more to it than that. It is necessary to take into consideration several different and often complex disciplines: town planning; architecture; cultural facilities; management; conservation; lighting; security; and many more. It is the weighing of each factor

and its interaction with other factors that makes programming a profession.

We shall not go back over the question of programming as a tool, as we termed it in our previous article, but we shall try to answer the question *Museum* has asked us today: How has programming developed in the ten years since the special number? First and foremost, what impact did that number have? The reply is, as ever, a complex one, both optimistic and pessimistic.

It is optimistic in that since we decided to specialize in the programming of museums and cultural facilities we have had a constant flow of work in France and abroad. This implies that numerous projects have had this logical approach as the basis of their development. Optimistic also because we know that the special number was a great success internationally, and we still receive frequent requests for copies. Optimistic, finally, because in museum circles, and particularly at ICOM, there is more and more talk of the need to develop a programme before undertaking a museum project, even if this talk too often remains just that, due to lack of funds.

Inversely, our reply is pessimistic because even now too many museums and cultural infrastructures are designed or converted without any serious preliminary study. Pessimistic, equally, because too many planners at every level, from the state to small bodies, are unaware of the existence of programming or consider it superfluous, expensive and, in

1. 'Programming: A Tool at the Service of the Curator, the Commissioning Authority and the Architect', *Museum*, Vol. XXXI, No. 2, 1979

the long run, useless, Pessimistic, lastly, because too many programme studies are carried out cheaply by amateurs with little training and an inadequate command of the problems specific to museums.

In the last twenty years, museums have changed considerably. From simple galleries with picture rails and display cases watched over by sleepy guards, they have become veritable 'machines', and that is why we described programming as a 'tool'. The museum machine is composed of ever-more sophisticated facilities and employs ever-more qualified personnel.

### *Museums in the headlines*

What daily newspaper would have put a museum on its front page twenty years ago? *Le Monde*, in its special business edition for Saturday, 1 April 1989, did so: an article entitled 'Les musées ouvrent boutique [Museums Open Shop]' describes the Louvre pyramid. In the same newspaper on Friday, 31 March 1989, there was a two-column article on the AGLAE accelerator; destined for the research laboratory of the Musées de France. On 16 February 1989, *Libération* devoted a full page to an article entitled 'Le devenir Musée de la planète [The Museum Future of the Planet]', while *Le Monde* spoke indirectly about museums under the headline 'Le Temple et ses marchands [The Temple and its Merchants]'.

The museum as merchant, as laboratory, as activities, as entertainment, as meeting-place, as promoter not only of its culture but also of its patron's prestige, and the museum for research—all these roles are replacing the museum gallery of our youth, and will do so more and more. Such a complex machine requires well-researched planning.

There can be no question of providing an expensive mechanism which breaks down immediately because it has not been properly adjusted. There have been too many more-or-less important unfortunate experiences of this kind. What we should like to point out is that it is a pity that programming methods have not been more widely accepted by clients, curators and architects.

Perhaps the previous number of *Museum* on programming used too technical a terminology. We shall now try to explain a programming operation and the relationship between the protagonists in a more anecdotal way.

A museum director, a curator, an elected official or an administrator suggests reorganizing, developing, reconstructing or even creating a museum. Naturally he could go directly to an architect, a decorator or a scenographer, explain his intentions and wait for the result. Obviously, it is not this ill-considered and risky course that we shall follow here. Our hypothetical client goes to a qualified programmer, preferably one who understands the specificity of museums. A contract is agreed upon for the development of a schedule of conditions as a platform for the future architect, decorator or scenographer—this is the programme. Part of the contract between the client and designer, this document will define as precisely as possible all the needs to be met: architectural, technical, as concerns museum facilities and in terms of functioning. There will be needs associated with essential, required activities (reception, stockage, laboratories, offices and so on); with equipment (climate control, presentation, vertical circulation, security, etc.); and needs defined by the way the museum will operate (personnel, opening hours, etc.). For each of these, it will be necessary to define the required performance (dimensions, overload, capacity, etc.); their specificity (the functions they must fulfil and how); and their spatial and functional relationships.

Such needs are defined by way of dialogue between the user—the person who must run the museum—and the programmer. They are the result of a number of facts, constraints, requirements and aims. The facts concern what exists (the collection, the personnel, the public, etc.). The constraints and the requirements are the limits of the project (the budget, the building if it already exists, and the administrative, technical or town-planning legislation). The aims concern the project's ambition (to modernize the way the museum functions, to develop new functions or to attract a new public, etc.). This will take more or less time depending on the scope of the project.

The pre-programme is established as a result of this dialogue and is a synthesis of the facts, constraints, requirements and aims that have been expressed. It is submitted to the various interested parties who accept it or amend it. A second phase of talks leads to a more detailed definition of each of the aspects of the pre-programme. This more detailed synthesis is called the 'basic programme' and

it is this document which will be submitted, after approval, to the designer, so that the project can be developed. Either the basic programme is given directly to a chosen designer, or it is used as a means of selecting one designer among many, through a competition, for example. The programmer can help the client, not only in setting up the conditions for such a competition but also in judging the projects submitted.

Unfortunately, the programmer's job is all too often cut short once the designer has been chosen. What are the consequences? Experience has shown that the programme is likely to be ignored for reasons that are only more or less acceptable, often aesthetic or technical, and this diversion from the programme is hard for the client to control.

### *Beware of cannibal builders!*

What in fact happens when the designer is chosen and why is there still important work for the programmer to do once this choice has been made?

First of all, it is necessary to judge how well the project, which is a formal, visual representation, corresponds with the programme, a written representation of the client's needs. This demands knowledge and experience few people possess, particularly when the project is in its initial stages; one must know how to decipher the symbolic language of the architectural plan. At the sketch-design stage, the project usually expresses only general intentions, the organizational principle for the major functions and their expression as volumes. It is a proposition full of potential, but which has not yet been subjected to a dialogue between client and designer.

It is essential to establish this dialogue in order to amplify the programme, to enrich it with the positive elements of architectural creation and, at the same time, correct any errors or malfunctions in the project. These errors are often the result of the architect's excessive desire to 'leave his mark'.

A museum is often an exceptional and prestigious undertaking, where the designer's personality can be developed more fully than in less important projects, and it often happens that the container (the architecture or scenography) overshadows the contents (the works to be displayed); the appearance becomes more important than the existence of the museum itself. It is too often forgotten

that a display case has only one function: the protection or conservation of the work to be shown. When it is possible to do without it, it is essential to do so in order that the relationship between object and viewer be as simple and direct as possible.

To make up for these errors and accidents, to help with reading the project and, above all, to help measure the consequences of each decision taken during the development of the project, it is possible to give the programmer the responsibility of overseeing and assisting the evolution of the project (the phase we call 'convergence, programme/project'). During this delicate phase, which is decisive for the application of the programme and the development of the project, the programmer assists the user in his relationship with the designer, so as to prevent the museum becoming the expression of a power other than that of the works to be exhibited—to prevent, as Pol Bury has said, 'the artist's tender flesh' from being 'torn by maniacs with their volumes and their gratings, the cannibal builders of space'. ■

[Translated from French]

# Auditing the museum environment: a project in Italy's Piedmont region

Marco Filippi

Engineer and full professor at the Department of Energy of the Polytechnic of Turin. Also teaches physics of installation, and the problems of lighting, acoustics and climate control in buildings at the Turin Faculty of Architecture. Was principal researcher in the project reported on here.

Chiara Aghemo

Architect, Ph.D. in energetics; specializes in issues of the internal physical environment of buildings.

Giancarlo Casetta

Engineer concerned with designing the installations of civil and industrial buildings.

Carla Lombardi

Associate professor in the Department of Energy at the Polytechnic of Turin and teaches physics at the Turin Faculty of Engineering.

Marco Vaudetti

Architect and associate professor in the Department of Architectural Planning at the Polytechnic of Turin; teaches, *inter alia*, museum design at the Turin Faculty of Architecture.

There is no such thing as a 'dead' building. Every house or office block has a 'life' of its own as the materials of which it is built age and change, both intrinsically and in response to the internal and external environments. The need to monitor structural and environmental variations over time is of particular concern in museums, given that: (a) they must shelter and protect objects that themselves are often very fragile or otherwise vulnerable, and (b) they are places of considerable public traffic. Accurate museum monitoring is especially important when additions to buildings or other structural changes are envisaged, and architects require considerable amounts of diverse data.

Conservators and architects can take steps against deterioration of collections they are in charge of only if they know which factors cause deterioration and how they cause it. The most important of these factors are now well known:

The humidity of the surrounding environment (which varies through time) and the material's capacity to absorb moisture are responsible for dimensional variations, not to mention dangerous movements from one point of the object to another of elements dissolved in water.

Electromagnetic radiation from the sun or other light sources, by causing chemical change, causes fading of the surface colour and a general change in the matter of which the object is made. Moreover, radiation, by increasing the temperature of the surface hit by light, can cause harmful mechanical tensions between different points of the object.

Temperature differences from whatever source, whether they depend on location or time, cause humidity displacements inside the object and dimensional variations. The temperature itself, if too high, can affect the capacity of the material to react against the forces to which it is subjected, thus becoming itself the cause of the object's losing its shape.

Besides these factors, museum location in urban areas, where road traffic has greatly increased in the last forty years, exposes the collections to a further cause of stress connected with the vibrations that can reach objects through building structures and furnishings. Similarly, a large number of particles and substances of various types in the air and the presence of larger quantities of different gases than before (SO, NO, CO, CO<sub>2</sub>, etc.) have yielded new types of chemical deterioration which are either superficial or deep and have, in general, resulted in an increase in the speed with which the already known types of corrosion occur.

#### *How the project began*

Seriously concerned about conservation of the museum collections, the Culture and Cultural Property Board of the Piedmont Region commissioned, in 1984, the Departments of Energy and of Architectural Planning at the Polytechnic of Turin to undertake a research programme to establish instruments and methods to be used in museums and similar institutions when dealing with problems concerning display and conservation.<sup>1</sup> The main aim of the Regional Administration was to provide organizations and institutions involved in museum matters with back-up documentation and technical assistance facilities to be used at the planning and execution stages in the physical and functional reorganization of the museums which already exist. It was intended, in addition, to make the staff in the field of cultural property conservation aware of new techniques, and more generally to develop scientific research in this field. By identifying the environment as the link between the objects to be conserved and their container, that is, the collections and the building installations, the team working in the Polytechnic undertook research about the museum environment quality, as regards not only climate and lighting but also display and security.

An interdisciplinary scientific approach which conformed to needs and

norms of the several disciplines concerned (architecture, furnishings, environment control and installations) made it possible to devise and implement new strategies to audit the environment and prepare specific instruments for measuring the physical environment variables. An important contribution to the development of this approach was the prior bibliographical search carried out with the aid of the ICCROM library. About 800 bibliographical references were found, classified and stored on a magnetic support.

In May 1986 these methods and instruments were adopted as reference points for a special project entailing cognitive surveys on the theme of display in conservation in about 100 museums, archives and libraries in Piedmont. The two-year project, financed by the Italian Government to the extent of about \$8 million at the end of 1986, was proposed by the Region of Piedmont and the Polytechnic of Turin together with ENEA<sup>2</sup> and is being carried out by MBA Piemonte in Turin.<sup>3</sup> The specific aims of the project are:

To create an information system (data bank) about display and conservation conditions in the various museum centres being examined.

To judge the actual situation of the various museum centres so as to determine: to what extent the primary requirements are being met, for example, the suitability of the building for the function it fulfils; the adequacy of facilities for their intended public; the microclimate and lighting control; and safety provision (against accidents, fire, theft and vandalism).

To judge the priorities for action and estimate the cost of raising the premises considered to a satisfactory standard.

To promote the use of instruments for surveying the physical-environment variables.

To create a new professionalism marked by on-going training characterized by a wider, more interdisciplinary approach required by technicians in the cultural property field.

The methods adopted and the technological expertise gained through the execution of this project will be made available to a regional back-up facility for documentation and technical assistance (Fig. 1).

#### *Auditing museum environment quality: problems and methods*

The initiatives, programmes and research described above are addressed particularly to museums housed in existing buildings. These may be of historical or architectural interest or ones which for some other reason are part of the cultural or environmental heritage. In some cases, their history is synonymous with radical and sometimes unforeseen changes in the buildings themselves. In terms of such buildings, Italy is unique. According to information gleaned from EEC surveys, around 4 million of the 5,367,359 monuments in EEC countries are to be found in Italy, and the number of these housing museums is very high. When it is remembered that less than 1.1 per cent of the national budget is allocated for the care of this heritage, it can be understood why local authorities are increasingly worried, and why there is a growing interest in perfecting instruments and methods for checking museums' state of health.

What does 'checking a museum's state of health' mean today in technical and scientific terms?

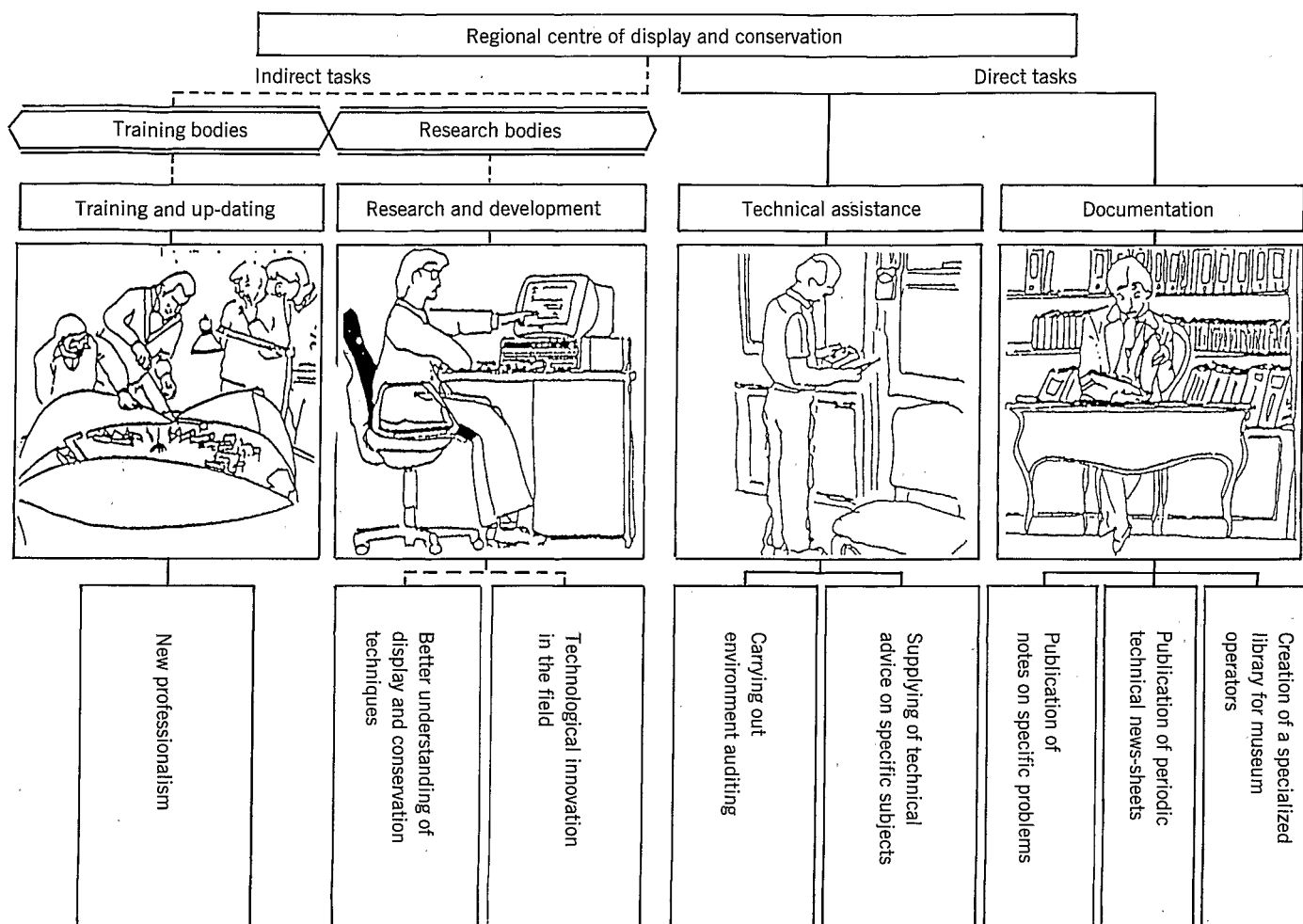
In a period when many museums face such numerous problems that they find it difficult to stay open, it means: (a) examining everything that might jeopardize continuity and standards in displaying collections to the public; (b) indicating the conditions under which such collections are likely to deteriorate and become shabby; (c) indicating the factors that might hinder the satisfactory up-keep of a building; and (d) studying the lay-out techniques and technologies which allow a museum best to exhibit its treasures and inform its visitors. In order to carry out a diagnosis of a museum, our project developed methods which allow:

The identification and collection of data illustrating the state of the museum environment and of the institution as a whole, according to pre-established categories.

The organization of the data obtained in such a way that they can be compared and assessed according to established criteria.

The judgement of the present condition of a museum, finding the interrelationships existing between requirements of the building and needs of the museum, and pointing out the inevitable contradictions between them.

On the basis of these considerations, an operative methodology has been devised. It involves two successive steps of inves-



All illustrations by courtesy of the authors

tigation: a qualitative survey (first-level auditing) and then a quantitative survey (second-level auditing). In the phases of the qualitative survey there is first an investigation into the environment quality of the museum in its widest sense. This is done by analysing the facilities linked to the type of building, to the provision of installations of different kinds, to the scientific organization, to display techniques in storerooms and exhibition halls, to the visitors' safety and to the security of the collections and of the building itself, etc. Information such as that regarding climate control, natural and artificial lighting, noise, vibration, size of the environment and furnishing, visitors' safety, deterioration of containers and objects exhibited is particularly useful in underlining the seriousness and frequency of critical situations with a view to reaching the minimum quality levels set for these facilities.

These phases are accompanied by the creation of 'thematic drawings', developed on the basis of the previous

architectural survey carried out on the building which houses the museum examined. They contain coded information on: (a) the building housing the museum; (b) functions, horizontal and vertical traffic; (c) museum programmes; (d) architectural features of the building; (e) display and storage techniques; (f) natural lighting; (g) artificial lighting and climate control (both in the building and in the showcases); (h) noise and vibration; (i) safety of the users; (j) objects (classification and state of deterioration of the objects displayed); and (k) security of the objects.

This information is included on the thematic drawings by quickly recognizable symbols (with a caption next to them) and is presented floor by floor with photographs in order to give a full contextual picture of the phenomena discovered.

**Fig. 1**  
The operations of a regional institution for display and conservation in museums.

1. In addition to the authors, the research reported on here was conducted by Enrico Bonifetto, Anna Maccario (architects), Livio Bongiovanni (engineer) and Ferrando Caon and Giuseppe Vannelli (technicians). The regional representatives in the research team were Dr Sara Coltro (the official in charge of liaison with the University) and Dr Dino Raiteri (the official in charge of Museum Services in the Piedmont Region).

2. ENEA is a national, publicly owned organization concerned with research, studies and pilot projects in the energy and environment fields. Recently this organization has allocated funds to the instrumental analysis of museum environments.

3. MBA Piemonte is a society with headquarters in Turin. It was founded to develop and oversee the project 'Allestimento e Conservazione nei Musei, nelle Biblioteche e negli Archivi; Indagini Conoscitive ed Ipotesi di Intervento' (Equipping and Conservation in Museums, Libraries and Archives) financed in conformity with Article 15 of the Law of 28 February 1986, No. 41.

### Quantitative assessment

Throughout the quantitative survey stages, data are collected in order to give numerical support to the qualitative survey already carried out. At this stage, the actual measurements of deterioration and comfort are taken and compared with an overall requirements reference sheet displaying universally recognized threshold values. This is done with the help of carefully prepared survey sheets on which the variables are described and arranged:

By listing and cataloguing the characteristics of the building and its various installations.

By taking measurements of the values of the physical environmental variables, for example, luminance, relative humidity and air temperature, surface temperature and humidity content of the walls.

By investigating conditions under which the objects are displayed, and facilities of the exhibition halls and store-rooms.

In this way a data bank is created, showing the actual situation by means of quantitative data grouped under the headings already used in the qualitative survey. The first-level auditing (without measurements of physical variables) and the second-level auditing (measurements of the physical variables suitably correlated and compared) come thus together to give a picture of the complex display and conservation situation existing in museums.

Using and processing the qualitative and quantitative data obtained, it is possible to go on to evaluate the levels of functioning, comfort, safety and security, and to define building quality indicators (for the evaluation of the reliability of display techniques and technological installations) and environment quality indicators (for the classification of the environment in relation to single values and evolution over time of the physical variables measured) and provide a judgement of the actual situation (Fig. 2). For the definition of judgements about the situation, Table 1 shows a suggested check-list of a museum's requirements; the judgement could be in the form of a diagnostic table showing in summary form the incidence both of shortcomings in respect of the overall requirements reference sheet (index of spread) and of the gravity that these shortcomings present (index of seriousness).

TABLE 1. A suggested check-list of a museum's requirements

<i>Architectural</i>	
Compatibility of the building with its museum functions	
Structural suitability of the premises for a change in their function	
Possibility of enlarging the premises to suit the museum's programmes	
Organic unity of the collections and the architectural style and type	
Level of interrelationship between the building and the display system	
Typological flexibility of the building to accommodate different display types through time	
Obstacles to access by handicapped people	
Building deterioration	
Architectural and historic environmental safeguards	
Assessment of the decorations and furnishings which are integral parts of the building	
Devices for the control of air velocity in the environment	
Protection against physical and chemical deterioration agents	
<i>Safeguarding</i>	
Plans to safeguard the collections in case of emergency (e.g. fire, natural disaster, etc.)	
Devices for the safety of visitors and operators	
Number of surveillance personnel	
Anti-intrusion devices	
Fire-detection and fire-extinction devices	

To pass judgement on display and conservation in museums is a complex operation requiring: (a) a continuous reading and interpretation of every thematic drawing, either totally or partially, followed by a careful examination of the quantitative data; (b) the personal participation of the staff responsible for the management of the museum; and (c) the definition of the overall requirements reference sheet with pre-established threshold values for conditions and services.

The methods of auditing the environment quality described above have been tested by the Polytechnic team by carrying out surveys, in both summer and winter, in six museums of different sizes and features in the Piedmont Region: the Palazzo Madama in Turin, the Museo Civico at Biella, the Museo Civico at Susa, the Museo Civico Craveri at Bra, the Museo Civico at Savigliano, the Museo di Antropologia ed Etnologia in Turin. In the future, plans of the different museum structures studied will be stored on a magnetic support using a computer-aided design (CAD) unit, and

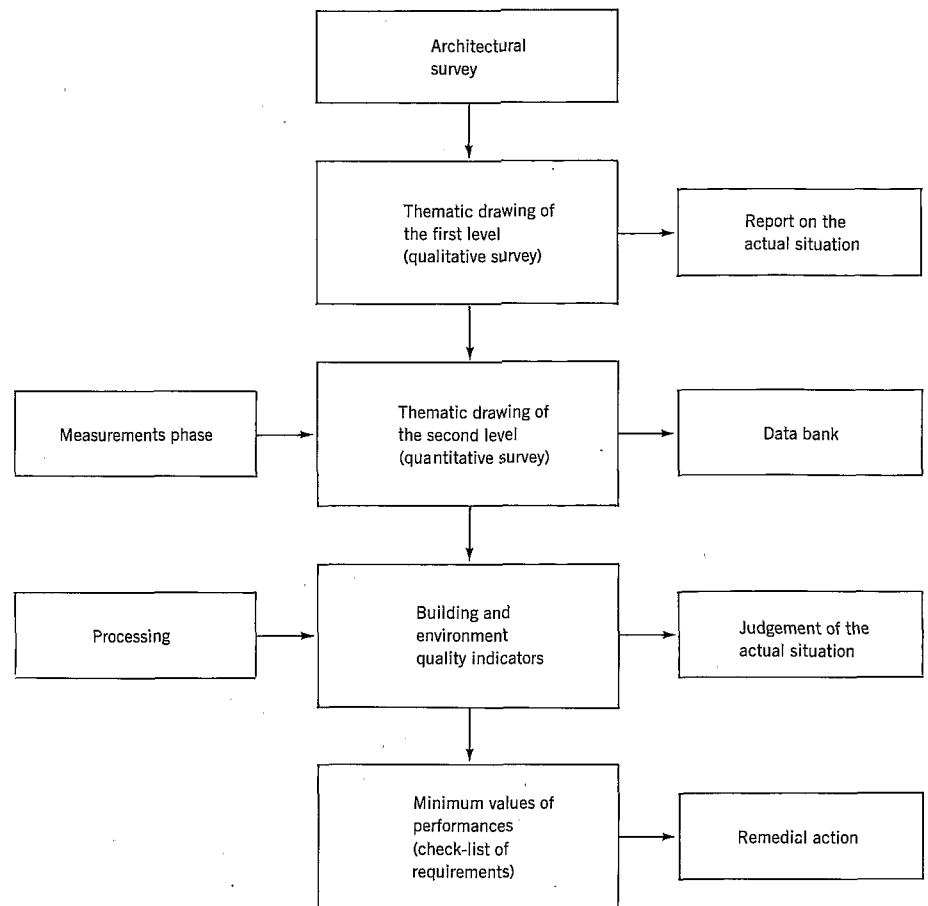


data on environment quality will be filed and processed automatically. The filed data will form a memory for the moment at which the premises and display will have to be modified.

### The tools developed

When measuring the above-mentioned variables, the problem is to identify the different points and times at which to carry out these surveys. Obviously, the environment does not have a uniform nature as far as the spatial values of the variables are concerned and there is no point in estimating these variables by taking measurements at a single point. It would likewise be unproductive to take measurements at too many points, as such a method would be difficult to manage when it is remembered that the variables fluctuate with time and measurements must therefore be taken frequently. It is necessary to divide the environment up in such a way as to allow a few strategically placed probes to indicate the critical areas, while also obtaining values for variables at other, less critical points allowing a tolerable error margin. This problem has already been faced in some cases by following two different strategies. First, surveys are made at short intervals with portable instruments at a large number of points, and then empirical spatial correlations are sought among the values of the given variables. The areas of risk where it is important to keep the variables under control are also revealed in this way. Secondly, physical and mathematical models are formulated of the spatial distribution of the variables under examination, which are to be studied by measuring particular points.

The environment varies in its behaviour through time in relation to the outside climate, the number of visitors and how well the air-conditioning or heating plants work. It is, therefore, necessary to carry out continuous surveys for sample periods including all the influences to which the environment is normally subjected. Measurements might for example be taken of the relative humidity and temperature at particular points for a whole month in each season of the year with sampling frequency linked to the rate of variation of the variables surveyed. In this way much data is collected which needs to be further processed in order to obtain more complex parameters capable of explaining more accurately the dynamics of col-



lection deterioration (for example, temperature gradients: average, maximum and minimum values in a day, in a week or in a season). For this analysis, and to summarize the results, a computer is necessary. The results of the analysis can be presented in the form of diagrams both for rapid consultation and to assemble a picture of the variable value distribution in space and time.

Our research team decided to set up two sets of instruments for surveying the physical variables; the systems yield different but complementary results.

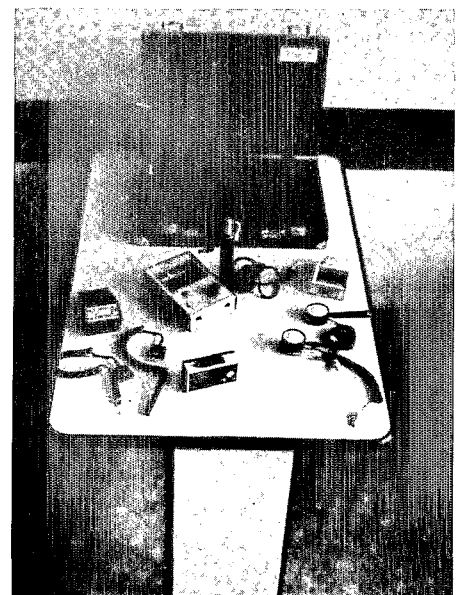
#### The conservator's suitcase (CS)

The CS (Fig. 3) has been conceived in such a manner as to allow it to be used widely throughout the region by the conservators of single museums; this is possible due to the low cost of each CS (about \$2,000).

The essential technical specifications of the instruments in each CS are given in Table 2. The instruments in the CS have been designed to be easily yet highly functional: the total weight of the suitcase is about 6 kg and it is not very bulky (external dimensions: 48 × 34 × 95 cm). The suitcase is made of 6-mm plywood and is padded inside. The instruments have their own batteries (each instrument

Fig. 2 Logical diagram of an environment auditing.

Fig. 3 The conservator's suitcase.



can be used non-stop for several hours, see Table 2). It is easy to find spare parts and repair work is straightforward. The features of the instruments assembled in the CS allow immediate measurements at particular points, thus permitting the conservator to collect initial data required to assess the causes of the deterioration of the objects at any given place and to gather other useful information, for example, for display purposes. For every three CS the inclusion is envisaged of one thermohygrograph and one humidity measurement system for the inside of the walls.

#### The data-acquisition system (DAS)

The DAS has been conceived to allow continuous surveys over long periods of time in close contact with the research

and data-processing centres. Because of its characteristics and cost (each system costs approximately \$15,000) its use is less widespread than the CS. The DAS is made up of two main subsystems: one is for the collection of external climatic data and one is for the collection of the internal micro-climatic data. The standard external subsystem is connected through a signal transduction box to a group of five probes allowing survey of the following variables: air, relative humidity and temperature, luminance, wind velocity and direction. The standard internal data system is directly connected to three 'satellites' which can be placed within a radius of twenty metres from the central system. It is possible to connect a total of fourteen probes to each satellite to survey the fol-

lowing variables: air, relative humidity and temperature, surface temperature and luminance. Both subsystems are equipped with a unit for the magnetic recording of the data acquired. All data are then transferred to a computer for subsequent processing and filing. The management of the data is made possible by a specially written software package. The essential technical specifications of the probes used in the DAS are shown in Table 3.

The DAS allows the collection of a large amount of pre-processed data over a long period of time. The small dimensions of the probes and their quality ensure that they are easy to position and that they allow the analysis of the spatial relationships inside a room. The simultaneous survey of the variables outside the room makes it possible to assess the internal environment's response in relation to the external one. The whole system allows the creation of a data bank of use for historical and statistical analysis of the physical environment situation providing complete and accurate information on key variables when architectural changes are considered. ■

TABLE 2. Technical specifications of the instruments in the conservator's suitcase

Instrument	Measure range	Resolution	Autonomy of operation
Thermometer with: probe for air temperature	- 10/+ 120 °C	0.1 °C	20 h <sup>1</sup>
probe for surface temperature	- 10/+ 120 °C <sup>2</sup>	0.1 °C <sup>2</sup>	4 h <sup>1</sup>
Hygrometer	0/100 % <sup>3</sup>	0.1 %	
Luxmeter with: - probe for luminance ≤ 10,000 lx	0/10,000 lx	1 lx	10 h <sup>1</sup>
- probe for luminance ≤ 100,000 lx	0/100,000 lx	10 lx	10 h <sup>1</sup>
UV meter	50/1600 μW/lm	50 μW/lm	—
Flexometer	0/5000 mm	1 mm	—
Thermohygrograph	- 15/+ 45 °C 0/100 %	1 °C 1 %	7/14 days
Humidity gauge inside the wall <sup>4</sup>	—	—	—

1. Continuous operation.

2. Dry-bulb and wet-bulb temperature.

3. Relative humidity.

4. This apparatus, by showing variations of electrical resistance inside the material according to its humidity content, allows a differential qualitative evaluation of the content itself.

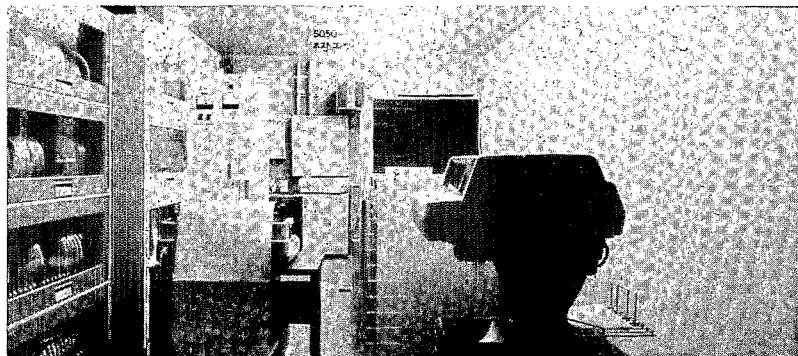
TABLE 3. Technical specifications of the instruments in the data-acquisition system

Sub-system	Probe	Measure range	Resolution <sup>1</sup>
External	Air temperature	- 20/+ 52 °C	0.1 °C
	Relative humidity	0/100 %	1 %
	Wind velocity	0/50 m/s	0.1 m/s
	Wind direction	0/360°	1°
	Luminance	0/100,000 lx	10 lx
Internal	Air temperature	- 20/+ 52 °C	0.1 °C
	Relative humidity	0/100 %	1 %
	Luminance	0/10,000 lx	1 lx
	Surface temperature	- 20/+ 52 °C	0.1 °C

1. Resolution relative to the probe-transducer system

# What is an 'intelligent museum'?

The central control-room of the  
Yokohama Science Centre.



## A Japanese view

Eiji Mizushima

Born in 1956 in Yokohama. Graduate of Tokyo University of Science, in systems engineering. Joined Japan Science Foundation in 1981 and has since been responsible for exhibition system design for science museums. Planned and designed the Japan History Pavilion at Tsukuba International Science Expo in 1985. Leader of Display Engineering Study Project and Museum Engineering Study Group. In 1987/88, visited the Cité des Sciences et de l'Industrie (Paris), and the Centre National de la Recherche Scientifique (Atelier de Bellevue), on scholarship from Japan Science Foundation.

Science museums are undergoing dramatic transformation today. The British Museum in London and the Deutsches Museum in Munich early became models for our National Science Museum, Japan's leading museum in this area. Both European forerunners were oriented towards collecting the heritage of the Industrial Revolution. Prominent discoveries and inventions that altered lifestyles and life itself are exhibited along with portraits of celebrated figures. Naturally, they focused on their collections. Thus, Madame Curie's experimental equipment, Newton's reflecting telescope, and Watt's steam engine provide perennial pleasure to people who appreciate their historical significance.

In Japan today, a radically new type of science museum is being built in several places, referred to more often as 'science centres' rather than museums. My involvement in science-centre construction and exhibit design has led me to propose a special construction system, which is now eliciting interest and which aims to produce what I call the 'intelligent museum'. In this connection, a museum engineering study group was formed here several years ago and is now engaged in research on and evaluation of exhibit

design and museums' architectural design. This article outlines our experiments and conclusions, with special reference to museum architecture.

There have been three stages in modern Japanese museum architecture. The first was technological innovation in terms of structure, represented particularly by steel and concrete. In some cases, the museum itself was endowed with a monumental quality due to its structural characteristics. The second stage saw stress on innovation in electricity, lighting, hygiene and other facilities. Facility improvement stemmed from a concern for comfort in the exhibition environment and good conditions for preservation. The third stage is 'information': recently completed buildings and their facilities are intimately linked to information and the intelligent museum is in essence one that highlights information, and therefore makes structural provision for information circulation and management.

### *The background*

What is the background to the concept of an intelligent museum?

Technological innovation is progress-

ing at a startling pace in modern Japan. In particular, advances in information processing and communication technologies, and networking as a form of integration of these technologies, are steadily escalating. This process has already touched all areas of society and penetrated even the ordinary home. It is predicted that the movement will proceed further, particularly as society makes the transition from hardware to software, from products to knowledge.

Architecture has evolved apace; cables and optical fibres criss-cross building interiors, and structural provision is made for exchanges of information conventionally written to become electronic. The 'intelligent building' was thus born, erected by office-leasing corporations in the United States in the early 1980s to attract tenant-clients. The concept was transplanted to Japan and began to take on new meanings to reflect conditions here. Though definitions are still far from final—or even clear—the intelligent building promotes efficiency in office and building management, being equipped from the start with sophisticated information and communication facilities characterized by flexibility and expandability.

Museum architecture is following suit, and our research team considers that the era of the intelligent museum is not far off. We have experimented with computers and sophisticated information systems for museum construction and exhibit displays attempting to introduce 'intelligent' functions into the museum. But a museum is not an office building and, while sharing certain functions and characteristics, it has other distinctive—even unique—roles and features.

What, then, is an intelligent museum? My idea of an intelligent museum is one that: (a) can control automatically museum operation and management and exhibit management; (b) can control the museum environment (exhibit environment and conservation environment); (c) is structurally equipped, both within and without, with information/communication capabilities; and (d) can control with computers and 'new media' equipment a visitor information service.

#### *Implications for museum architecture*

The bedrock of museum architecture is partly the same as that for living space and shelter designed for human beings: to protect and preserve artefacts, paint-

ings, sculpture, historical documents, specimens, scientific heritage, and so on. On the other hand, museums have in addition an exhibition function, which of course also plays a vital role in determining museum architecture. I have, moreover, consistently proposed to expand the exhibition function's definition even to the extent of describing it as 'information'. If collecting and conservation are an information-receiving function, presentation can be thought of, and designed, as an information-transmission function. In speaking of modern museum architecture, I believe that the museum should no longer be seen passively as a receptacle for collections and visitors but, actively, as a device that receives and transmits information and supports various museum activities dynamically.

In operational terms, the installation and functioning of information hardware and software in an intelligent museum have special vital requirements to which architects and programmers must pay particularly careful attention. Uppermost among these are the following four elements.

The *first* element is a stable supply of electrical power of appropriate quality. Demand for electrical power varies markedly in function of equipment installation density, equipment energy consumption and operation rate. In addition, future consumption needs are hard to forecast since, for example, energy conservation at video terminals can offset increase in consumption by expanding and diversifying recourse to the computer. At any rate, potential increases over time of electricity requirements must be taken into consideration.

The *second* element is selection of an electrical wiring method. A main key to the intelligent museum is information-transmission capability. Here, the signal circuit that serves as transmission medium has utmost importance. To assure quality signal transmission, noise must be prevented. Optical fibre is being widely used of late for computer circuitry together with power lines. This can be a headache for architects since adequate distance between power and transmission lines must be secured or shields must be installed. Other points to note when installing signal-transmission lines are flexible transmission capacity, and thus sensitively diversified location of connections with terminal equipment (for instance, in floors, walls or ceilings). Obviously, the selection of wiring

routes, material and methods (free-access method, floor-duct method, piping method, to name but a few) is of crucial importance. Moreover, care must be taken to ensure the aesthetic quality of the environment, particularly in exhibition spaces, where careless wiring can be offensive to the public. When utilizing, or re-converting, old buildings as museums, installation of wiring is likely to become a most serious problem indeed.

The *third* element is the air-conditioning system inside the museum. Maintenance of an air-conditioned environment is intricately linked to qualitative and quantitative fluctuations and the needs of visitors, museum staff, and artefacts and specimens easily affected by humidity and temperature, not to forget generally sensitive computer equipment itself. For this reason, architects must pay special attention to the thermal quality of the structure, heat emission from equipment, changes in the number of visitors, exhibition environments and conservation environments, and perceive them in a comprehensive general framework so as to design in detail air-conditioning and other climate-control systems.

The *fourth* element is, of course, the security system. Here, information is the very life of an intelligent museum. The weakness of information and communication systems designed to ensure security is discussed frequently. To overcome it, basic solutions can be built into the system itself, and many—sometimes conflicting—architectural measures must be considered as well. For example, installation of sprinklers (claimed to be the most effective protection against fire) has been known to cause deterioration of electrical insulation in communication systems, and even serious secondary damage. Needless to say, measures against earthquakes must also be taken in vulnerable regions to protect the structure and exhibits against such dangers as disruption of wiring, destruction of floors, walls and ceilings, and rocking and falling of electronic equipment. There is, in addition, the installation of security cameras for detection of fire, unauthorized entry and burglary. Along the same lines, devices to gauge automatically the environment are used.<sup>1</sup> The devices can inspect eight items, such as temperature, humidity, carbon-monoxide and carbon-dioxide density, dust quantity, wind speed, luminescence and noise. A museum that can literally

## Internal networking—two examples

Here, I should like to offer two actual examples of computer networking inside a museum. The first is the local area network (LAN) system at Yokohama Science Centre which opened in 1985. The second is a more recent experiment in exhibition evaluation by the LAN system, which our project group conducted.

With progress in new media, the nature and means of interaction between information and the visitor have changed. In the past, the computer itself was an object of study and exhibition at science museums. Today, however, it is no longer a rare machine, and to use computers for communication with visitors is a challenge for museum professionals, as well as architects. One role of computers at the Yokohama Science Centre is to link human beings with different sources of information available to them in our institution. Children are, for example, to gain free access to the exhibits' graphic data base, and also to record information they wish to share with others. Also, information conventionally presented on labels is now displayed on the computer screen.

Inside the centre, several dozen computer terminals are distributed throughout the building and interconnected by LAN to offer various services, such as guidance to the centre, special visual exhibits and simulation games. Thanks to this sort of interfacing, we are now becoming a much more accessible museum. Even at the Ontario Science Centre and the San Francisco Exploratorium, known for their daring science displays, computer use is limited to

instance. It should be noted here that enhancement of such interactive telecommunication functions requires structural accommodation, making it all the more important for architects to take full account of the criteria described earlier.

In the example just given, LAN has been used as a means to present exhibit information inside a science museum. Our research group has conducted another interesting experiment with LAN. We acquired monitoring data with computers about how visitors interacted with computers, to find out, *inter alia*, how many visitors actually used the computer, and how much they learned.

Briefly, the objective of the experiment was to measure effects on visitors of exhibition-related computer-aided instruction (CAI) software such as *The Cell*, *The Volcano*, *Earthquakes*, *Computers*, and *Outer Space*. At the same time, an image survey was conducted employing the semantic differential method. Also gathered and analysed were data on how visitors used the computer to seek, acquire and refine information and knowledge (what could be called the computer's 'study function'). How long do visitors use this function? Who uses it? When? How often? What paths of inquiry do they follow? When tested, how accurate are their responses? These were some of the questions on which we wanted enlightenment. After a visitor touched the computer keyboard and answered the first few factual questions (sex, age, software chosen), the entries were registered automatically in the study implementation programme, facilitating aggregation and analysis.

The experiment was a preliminary test for introducing the LAN system in museums, and was conducted for three

months. The number of computer users during the three-day period was 1,199. The time of use was concentrated between 10.30 and 11.30 a.m. and again between 1.00 and 2.00 p.m. (The museum's opening hours are from 9.30 a.m. to 4.50 p.m.). Foremost among users were primary-school pupils, junior-high-school and high-school students, and adults in their twenties, thirties and forties. The majority of users were male.

Facts on visitor demographics, earlier known vaguely by impressions, were thus clarified simply and with no extra fuss by actual use of the computer, and we acquired reliable information on how best to improve information equipment and program efficiency, as well as how to pay due attention to different types of visitors and times when they are most likely to seek information and knowledge from the computer. We conclude that an 'intelligent' museum can also become a more 'user-friendly' museum.

In conclusion, I wish to stress that bringing an intelligent museum into existence, either by top-to-bottom renovation of an existing institution or by building anew, is fraught with problems for architects and museum professionals alike. Some are questions of detail; others are major issues often requiring costly solutions. All in all, creating intelligent museums is a real challenge, which—if faced squarely—may well lead us to a museum revolution. ■

1. See also, in this regard, the article on page 235.—Ed.

# Bratislava: from the Stone Age to computerization

Alojz Habovštiak

Born in 1932, specialist in medieval archaeology. Directed the Archaeological Institute of the Slovak National Museum from 1969 to 1977; has been director of that museum since 1977. Member of the Czechoslovak National Committee of ICOM and of the International Committee for Museums of Archaeology and History. Author of a monograph and numerous essays on medieval archaeology and museology.

Since 1969, Bratislava (earlier known as Pressburg) has been the capital of the Slovak Socialist Republic, which is an integral part of the Czechoslovak Socialist Republic. Its history is ancient, however, since uninterrupted settlement of the site goes back to the Stone Age. This is largely due to the site itself. The city occupies both banks of the Danube, at a place where the river could be forded, and boasts a strategically important hill ideally situated for fortification—all this at a kind of natural geographical gate and crossroads of European communication.

High points in the city's history have included the building of the first castle during the Moravian Empire (ninth century A.D.), the granting of municipal privileges in 1291 and the creation there of the first university in the territory of Slovakia (*Academia Istropolitana*) in 1467. During the Turkish occupation of southern Hungary, Bratislava was the venue for coronations (1536 to 1784) while, beginning in the eighteenth century, it became the focal point of what could be called the national and cultural enthusiasm of the Slovaks. The second half of the nineteenth century saw the city play a key role in the revolutionary workers' movement, and it became the capital of Slovakia after the proclamation of the Czechoslovak Republic in 1918, later to be liberated by Soviet forces at the end of the Second World War (4 April 1945).

Today, Bratislava has nearly 450,000 inhabitants and is the centre of Slovak cultural life. Its museums and galleries are too numerous to describe each one in detail in this short feature designed to introduce *Museum* readers to our city's museum life. Those that cannot be included for lack of space include: the V. I. Lenin Museum with, *inter alia*, its special child-oriented exhibit that places this historical figure in his family setting; the Museum of Education and Pedagogy, the youngest of our museums (created in 1970), but perhaps not the least ambitious; and the Slovak National Art Gallery, located in the mid-eighteenth-century Water Barracks by the Danube, and presenting Slovak art from the thirteenth to twentieth centuries and European art from the fifteenth to eighteenth centuries (its collection has grown from 555 works in 1950 to 50,000 today), and overseeing several smaller museums.

Now, we shall look in turn at three museums—museum clusters, really, since each is an umbrella structure—that show Bratislava's double cultural role as Slovak capital and thriving city in itself.

## *The Slovak National Museum*

What we call familiarly the SNM was founded in 1961 through the merger of two much older institutions. These were the original SNM, opened in the town of Martin in 1893, and the Slovak Museum, which stemmed in turn from the Home-

Bratislava, capital of the Slovak Socialist Republic, with its strategically sited castle that houses historical and archaeological exhibitions of the Slovak National Museum.



M. Červeňanský

Ancient jewels exhibit at Bratislava Castle

land Museum created in 1923 and the Agricultural Museum set up in Bratislava in 1924. With such a manifold parentage, the Slovak National Museum could not but have extremely varied activities, rooted in no less than ten organizational units, of which five are now briefly presented.

The Archaeological Museum holds its exhibitions in Bratislava Castle, and collections of 113,350 objects ranging from primeval ages to the Moravian Empire (ninth century A.D.). Of special interest is the exhibit of jewels from old Slovakia, covering more than 1,300 pieces fashioned from gold and silver, but also other scarce materials such as mammoth tusks, ivory, crystal and amber.

The Historical Museum of the SNM also exhibits at the castle (as well as at the SNM's main building by the Danube) and shows the development of material and intellectual culture from the eleventh century up to today, drawing on a collection of 200,861 items. Close attention is given to folk art, musical instruments and the numismatic collection. This museum was the first in Slovakia to use audio-visual and multimedia presentations.

With a collection 2 million strong, the Museum of Natural History shows to the public specimens in mineralogy, geology, palaeontology, botany, zoology and anthropology from Czechoslovakia and around the world.

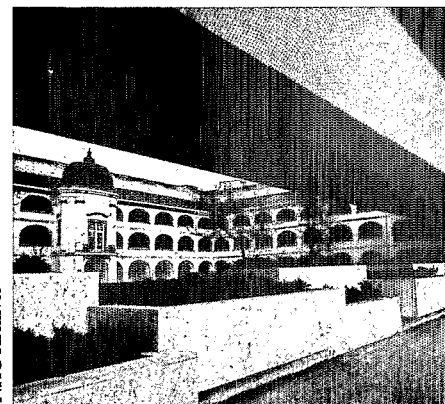
The Museum of Development of Social Consciousness, set up in 1978, is a

non-traditional museum unique in Czechoslovakia. It strives to popularize a scientific and materialist worldview, and concentrates on educating from the atheistic point of view by means both of its artefacts and its visitor-tailored audio-visual technology.

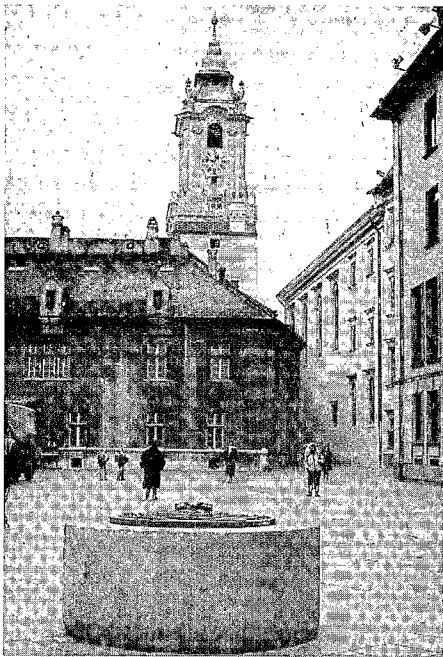
Finally, the Museological Institute is a scientific and research institution of the Slovak National Museum that specializes in the theoretical issues of museology, trains museum staff and issues a number of occasional and periodical publications, not least among which is the quarterly homonym (differently spelt) of the magazine you are reading right now, *Múzeum*.

In addition to the above-mentioned specialized units, the SNM encourages a number of different educational activities including lectures, courses, excursions, concerts and—not least important in an area where potentially dangerous mushrooms are very popular—a Mushroom Advice Bureau. The SNM itself also issues numerous publications and maintains a library (of 67,156 volumes) that carries out international exchanges with more than 850 museums and allied institutions in foreign countries. The SNM is also developing multipurpose co-operation with related institutions in Czechoslovakia, other socialist countries, and—thanks to ICOM, its international technical committees and Unesco—elsewhere.

The Slovak National Art Gallery located in the eighteenth-century Water Barracks, with an extension (foreground) from the 1970s.



SNAG Archives



Z. Zemanová

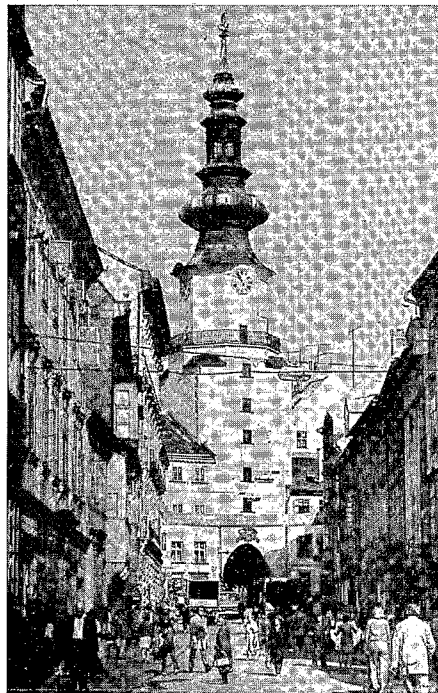
The fourteenth-century Old Town Hall, housing part of the Municipal Museum's collections.

### *The Municipal Museum*

One of the very first museums in Slovakia, the Municipal Museum of Bratislava was created in 1868. Its first collections were housed in the Old Town Hall (built between 1326 and 1373 and, though subsequently remodelled, is the oldest secular building in the city) and the Apponyi Palace (a rococo building erected in 1761/62). This, too, is a decentralized institution since most of its 85,000 objects are located in twelve specialized exhibitions throughout the entire city, mainly in historical buildings. Thus, the history of Bratislava until the eighteenth century is covered in the Town Hall (now being restored) as are records of feudal justice, while the story of wine and wine merchants in Bratislava is told in the nearby Apponyi Palace. A bit farther afield is the exhibition on Bratislava's applied arts at a rebuilt 'citizen's house' near the castle, and the clock museum in another old building 'At the Sign of the Good Shepherd', not to forget 'At the Sign of the Red Crayfish', which has the furniture and equipment of an early nineteenth-century apothecary's shop.

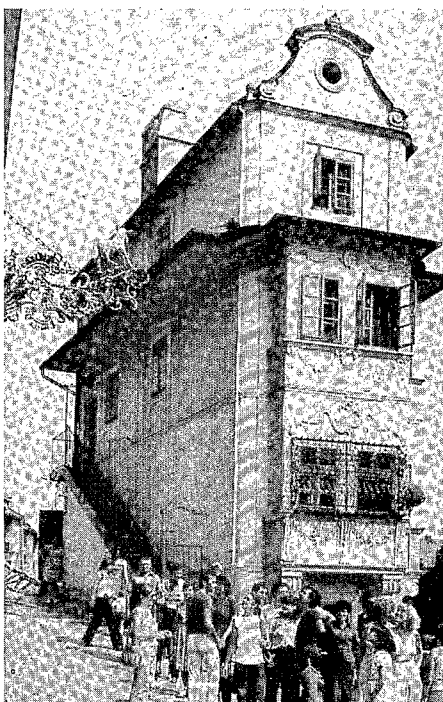
Very popular among visitors is the exhibition on weapons and town fortifications at the Michael Tower. Then, too, the classical composer Johann Nepomuk Hummel has a museum devoted to him in his old dwelling, as does the important Slovak writer Janko Jesenský (1874-1945). The Municipal Museum also manages, among other activities, a Room of Revolutionary Traditions, and, recalling resistance activity in the years 1941 and 1942 when Bratislava was occupied by the Nazis, the Illegal House of the Slovakian Communist Party. Complementing these contemporary concerns—and yet one of the Municipal Museum's newest exhibitions—is the antiquities exhibition at the Rusovce site, where are shown remains of Roman buildings from the first to fourth centuries A.D.

In addition to other sites it oversees, the Municipal Museum manages Devín Castle, where archaeological research continues, and runs a diversified educational programme that features attractive exhibits and other topical events. Its library holds 20,000 volumes, it issues a yearbook, and has mounted exhibitions in Finland, the German Democratic Republic, Italy, Poland and the Ukrainian SSR.



D. Ivanová

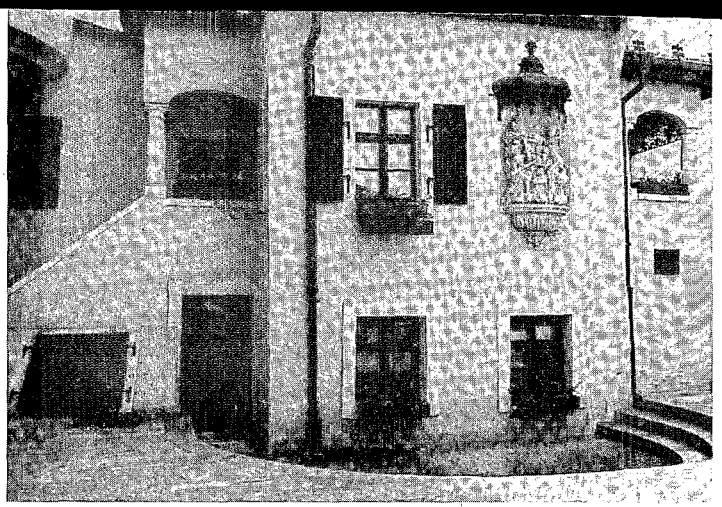
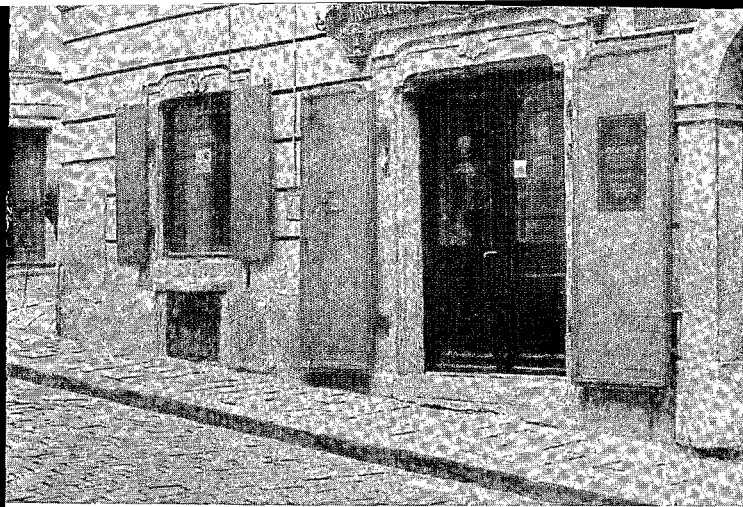
The old Michael Tower houses the Municipal Museum's collection on weapons and the town fortifications.



Z. Zemanová

'At the Sign of the Good Shepherd' (note lamb), home of the Municipal Museum's clock exhibition.





### *The Bratislava City Art Gallery*

Drawing on earlier efforts, the BCAG was formally created in 1968, when Bratislava became capital of the Slovak Socialist Republic. Its home, the mid-eighteenth-century Mirbach Palace, is remarkably well suited for an art gallery. Its collections cover European art (including seventeenth-century English tapestries) and feature Gothic paintings and sculpture, as well as Dutch, Flemish and Italian masters. As part of its outreach efforts, the BCAG set in motion, in 1975, the Small Art Gallery at Slovnaft, Bratislava's largest industrial works. There, permanent exhibitions are designed for the firm's workers, including discussions with artists and visits to their studios. What distinguishes the BCAG is its extraordinary activity in the field of exhibitions, accompanied by a multi-coloured 'palette' of educational, cultural and public-relations action. In addition, this was the first museum in Czechoslovakia to computerize its collections, now comprising some 30,000 works of art.

Since 1945, Bratislava's museum life has surged forward remarkably from a quantitative, but more especially a qualitative, point of view, with no precedent in the history of Slovak museology. Naturally, this development will continue. For the years to come, we have on the drawing board, in addition to improving the museums that already exist, a Museum of the Revolutionary Workers' Movement, a Theatre Museum, a Business Museum, a Museum of Physical Education and

Sports, etc. As far as the arts are concerned, there will be a Gallery of Architecture, Applied Arts and Design, and a permanent collection of plaques and medals at the Slovak National Art Gallery.

For Bratislava, and for all of Slovakia, a priority common task is now to work out a central system of information on the holdings of all museums, and to introduce all staff concerned to a computerized system of processing museum holdings.

This being said, Bratislava's museums are now receiving something like 900,000 visitors a year, which—by the law of averages—means the equivalent of about two museum visits per year by resident of the city. Compared with the Louvre in Paris, where the figure is about one resident-entry per year, we are not dissatisfied. But we also know that much remains to be done, so that Bratislava may grow as a 'museum city'. ■

'At the Sign of the Red Crayfish' (see medallion over door) houses the Municipal Museum's pharmaceutical collection.

House-museum of the classical composer, Johann Nepomuk Hummel.



Virgin and Child, in the permanent exhibition of Gothic art at the Slovak National Art Gallery (anonymous Slovak, c. 1500).

SNAG Archives

# Theft of cultural property called 'epidemic' at sixth session of Unesco's Intergovernmental Committee

Unesco Office of Public Information

'The theft of cultural property has become a kind of epidemic and there are few measures available to confront it. The work of this Committee is leading toward the beginnings of a solution.' These were the terms used by Professor Suat Sinagolu, President of the Turkish National Commission for Unesco, to sum up the present situation and perspectives for action to bring cultural property back to its countries of origin or to provide recourse for restitution in the case of illegal acquisition.

He was speaking to the sixth session of the Intergovernmental Committee for Promoting the Return of Cultural Property to its Countries of Origin or its Restitution in Case of Illicit Appropriation, which was held at Unesco Headquarters from 24 to 27 April 1989.

One of the cases studied by the Committee concerns a claim by Turkey concerning the German Democratic Republic on the subject of more than 7,000 cuneiform tablets recording the accounts and correspondence of Hittite merchants, as well as a sphinx from the same civilization. The tablets have already been returned to Turkey and the German Democratic Republic has now accepted the idea of sending a mission to Ankara in order to examine the remaining problem of the sphinx.

This case is one example of the ways in which this Committee has explored lines of action since it was created by Unesco. The Committee takes steps to promote negotiations between countries that import and those that export works of art. This is no easy task. Between private or public collectors, often very rich, and poor communities who sell the fruits of

secret 'digs', a network has sprung up of specialized 'middle-men' highly skilled in illicit art traffic and in crossing borders with artefacts stolen from museums, places of worship, libraries and archaeological sites.

Mr Henri Lopes, Unesco's Assistant Director-General for Culture and Communication, stated in his opening remarks: 'Last October, the Thai police ended the activities of a gang which had invested \$500,000 in an effort to carry out the systematic pillage of historical sites difficult to safeguard because of their distance from major urban centres.' He noted that these practices 'are better and better organized, and take the form of real profit-making enterprises. Indeed certain observers estimate their profits as comparable to those resulting from drug trafficking'.

These remarks show the extent of the problem that the Committee is dealing with. The recommendations formulated by it concern both international co-operation and the promotion of bilateral negotiations. The Committee gives importance to encouraging sound museum-conservation practices, to inventories, to requiring certificates of provenance and exportation of all purchases involving artefacts of unclear origin as well as to the sharing of a professional code established by the International Council of Museums and informing the public at large—all factors which can at least slow down the illicit traffic in art. Other than representatives of countries that are not members of the Committee, several inter-governmental and non-governmental organizations participated in this work: ICOM, Interpol, CINOA (the

Federation of Associations of Antique Dealers), Unidroit (the International Association for Unifying Standards in Civil Law), as well as the Council of Europe. The latter is presently studying ways and means of preventing a new flare-up of illegal art trafficking with the creation of a unified European market beginning in 1993.

Sixty-five states have ratified or adhered to the Convention Concerning Measures to Forbid or Prevent the Import, Export or Transfer of Cultural Artefacts adopted by Unesco in 1970. The United Kingdom is not a party to this Convention. However, one of the questions being actively followed by the Committee involves Greece's claim for the return of the Parthenon Marbles preserved in the British Museum. The 1982 Conference on Cultural Policies organized by Unesco, recommended the return to Greece of these marble artefacts. To this end, the Greek authorities are proposing to build a museum in Athens that meets the highest professional requirements to house these relics, should they be returned. The design for this museum will be studied by the Committee and by neutral experts who, having made a comparative study of the two museums' conservation capacities, will be able to give rigorously researched advice. ■

Spain and presided over by His Excellency the Duke of Soria and will open in Córdoba, Spain, on 2 April 1990 under the general theme: 'The Museum as a Focus for the Community. The Role of the Friends of Museums'.

1. *Updating the museum's image in the 1980s*

The reasons for its phenomenal growth? Twilight or rebirth? Its roles in the city and in contemporary culture.

2. *The museum: focus for the community through its architecture*

A fleeting phenomenon? Relations between the museum and the city.

Autonomy over space and exhibition constraints: how to reconcile them? Analysis of recent experiences.

3. *The museum: focus for the community through its activities*

What will museums' future functions be?

How to reconcile conservation and cultural exhibits? How flexible is the museum's control?

Which criteria for museum activities: the transitory or eternal?

4. *New challenges for the Friends of Museums*

Which challenges for the future?

The Museum Friends' Associations were created through the efforts undertaken by social groups within a structured context. What future targets must they now set themselves?

Initiatives corresponding to these targets? Which ones?

Friends of Museums' autonomy or complementary participation towards public institutions?

Which direction should be given to their relationship?

The World Federation of Friends of Museums will be happy to welcome to its Seventh Congress all those museum professionals who are interested in the museum's role in the society and the active part that the Friends of Museums can take with a view to benefiting from their active participation during this meeting. ■

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## *Architecture and exhibitions: new settings for new art*

*(Extracts from an interview)*

In what follows Harald Szeemann gives the World Federation of Friends of Museums the benefit of his thoughts as an organizer of contemporary art exhibitions. Harald Szeemann could almost be called a veteran among organizers of exhibitions; his first dates back to 1957. Director of the Berne Kunsthalle from 1961 to 1969, he organized *Documenta 5* (1972) and such thematic shows as *Les machines célibataires* and *La quête*

*de l'œuvre totale*. Since 1981 he has been an independent consultant with the Zurich Kunsthaus and an organizer of contemporary art exhibitions in various European cities. In 1969 he organized *Quand les attitudes deviennent forme*, which marked the beginning of a new aesthetics of display and presentation holding a special interest for museum architecture.

galleries were built—new art always needs new settings. The Kunsthalle in Baden-Baden or in Berne, for instance, are galleries on a very human scale where still today the latest works can be given the necessary breathing space. Up to now, I have considered them to be ideal galleries.

In Switzerland, after the First World War, artists rebelled because they felt neglected by museums. They wanted their own exhibition space, their Kunsthalle, and in this they were harking back to an old tradition consisting in the formation of associations of artists. In Zurich this tradition is more than 200 years old, though the museum in that city dates back to only 1906.

It was artists who proposed new methods of display. If you look at photos of exhibitions of the Sezession movement in Vienna around 1900, you see that most of the time they were group shows in which particular attention was paid to the individual. They were so designed as to place the work of artists like Hodler or Munch in the limelight. But as for the others, the conditions were those described by Baudelaire in the Salons where, in order to discover Delacroix, the genius of Romanticism, which he did with great difficulty, he had to be guided by the intensity of his paintings, jumbled together with thousands of other works.

Let us consider over a period of 100 years the changes ushered in by the mounting of exhibitions, the building of galleries, the building of museums. These changes went hand in hand with the emergence of a new society. Much of the energy that had previously gone into the building of castles and churches was now directed towards the construction of town halls, the laying out of landscape gardens, the organizing of international exhibitions (seven in the nineteenth century) calling for construction work on a large scale, and so on. We see here a confirmation of what Sedlmayr always claimed, namely, that when the centre of

one thinks of Malraux's exhibition in Warsaw (we know how he hung his icons and his etchings because there are photos), it becomes clear that it was the artists who broke away from the traditional method of displaying works. They were no longer interested in placing their works along the same old horizontal line. In insisting on how their art was to be presented they sought to make it carry the greatest possible message. The most advanced organizers of exhibitions have learnt from them.

After the Second World War, a new figure appeared on the scene whose role, which had previously been performed by museum curators, was to display works of art. The mounting of exhibitions has become a full-time occupation. It is no longer possible both to collect works and to put them on show. There are museums today where this formula still applies, such as the Pompidou Centre, opened in 1977 but aesthetically still a product of the 1960s. The Pompidou Centre most closely resembles a comprehensive cultural centre—the idea long cherished by Malraux, of cultural centres, *maisons de la culture*, accommodating a library and serving as a showcase for architecture, design, music as well as art and exhibitions.

*WFFM*: Does a factory-like appearance draw people to a museum?

*H.S.*: I would certainly say so, for the Pompidou Centre. The view over Paris and the escalators make it look like a production plant. It has become a landmark. It's a bit like the Eiffel Tower, with different things inside it. The Eiffel Tower is a builder's blueprint and a structure offering a panoramic view over the city; the Pompidou Centre is a factory and as such it contrasts sharply with the rest, and particularly with the Marais district where it is located. If you don't want to look at a picture you can go up to the top and admire the Sacré-Cœur church atop distant Montmartre. All French schoolchildren visit it, just as they

During the 1950s, when an attempt was made to exhibit contemporary art, only a very limited number of people showed any interest. The refrain then was: 'How nice it would be to have at least as many visitors to museums as to football grounds.' Well, in the 1970s this objective was largely surpassed. Previously, part of the public was frightened to go to museums or only went out of duty or obligation. This feeling had to be overcome. But there are also the statistics: 94 per cent of people still go to see a particular exhibition because they have heard about it, leaving only 6 per cent—a small minority—with a genuine response to art.

During the 1960s many factors came into play that help to explain this phenomenon. For instance, films started being made of the lives of artists. Kirk Douglas played the part of Van Gogh and Anthony Quinn was cast in the role of Gauguin, just as Gérard Philippe had played Modigliani in *Les Montparnos*. Through seeing actors painting, the public became acquainted with certain pictures. This accounts for the increase in the number of visitors. It was only logical.

I also think there's another explanation. An increasing number of people want to experience and form their culture for themselves, to take in at their own pace what is offered to them, and spend their own time as they like, looking at something. Even though museums are élitist in themselves, the form of presentation may be very free. You don't have to remain seated for three hours as in a theatre, or watch for twice forty-five minutes two teams trying to score a goal. Exhibitions have also become for a brief moment a kind of heaven on earth where people can follow their fancy, stroll around and talk. I remember that in the 1960s people used to whisper in museums; now they actually dare to talk.

There was a great breakthrough in 1968, in the form of what was known

as *le musée*  
museum, wh  
departure from

museum, and which came about because a growing number of young curators began working directly with artists. Don't forget that in the nineteenth century there were six art movements and that now there are more than forty. We should also bear in mind the rapid pace of change, the example being set for us here by the United States where each autumn there had to be something new. As a result, curators were led to see huge numbers of artists, discuss exhibitions with them and visit their studios.

At the end of the 1960s, you might say after kinetic art and abstract expressionism, a revolutionary new form of art made its appearance which consisted of 'gestures' that could be confused with the gestures of everyday life. The museum then became a place that served to justify the gesture of the artist as a work of art, whereas outside in the street it ceased to be art. That was perhaps the crowning moment in the life of the museum as an institution. Sanctified by the institution, gestures became artistic. It was also the most dramatic moment for us, the organizers. We were criticized, for instance, for letting Beuys bring grease into the exhibition rooms; it wasn't Beuys who was criticized—he was the artist—but we who allowed him to do it. But at the same time we had the most amazing experiences. I have always said that in the final analysis art, the Utopia of art, consists in changing the sense of property, in introducing into materialism a Utopian side which very gradually alters thinking. That which is useless then becomes extremely useful in arousing the imagination. And in my case, as the director of a Kunsthalle, with a public monument at my disposal, I felt that it was my educational task to use a public facility to arouse the individual imagination. Such was the anarchistic idea to which one subscribed at the time.

It's a wonderful fact that art does not relate to an immediate goal. It is there, perhaps, that its basic political value lies, but also its fragility in a consumer society where, side by side with mass-produced articles and mechanized forms of work, there exist lone individuals who are bent on engaging in fragile pursuits. And for that there is a place, the museum, the Kunsthalle. This aspect of art—apolitical where the immediate future is concerned, but highly political in the long run—created a kind of tacit agreement, and I

*Walls that are walls and  
spacious spaces: the museum as  
a neutral setting*

WFFM: Are architects unmindful of the things that go into their buildings?

H.S.: When the public authorities handed out money for the building of all these museums they were guided more by general cultural considerations than by artistic ones. They were prompted by a desire to establish a kind of star-studded opera, the stars being the architects. Those architects never gave any thought to art, only to what they were building and how it was to be built. Thus the Pompidou Centre designed by Rogers and Piano, Gae Aulenti's Musée d'Orsay, Stirling's work on the Stuttgart Museum and Hollein's in Mönchengladbach, and somewhat more modestly the Ludwig Museum in Cologne and Louis Kahn's work in Fort Worth, all reveal a style of architecture that does not draw inspiration from history in an effort to serve the works on display, but imposes its own style on that fragile thing we call art. It all began with Frank Lloyd Wright (though Frank Lloyd Wright is wonderful for Calder). As a building, I find his Guggenheim Museum extraordinary, but for showing other forms of art, it's awful. In the hands of these architects, museums ceased to provide what might be called a neutral setting.

In my view, the ideal museum always means very high walls, toplighting and neutral flooring—in such a context you can do anything! It's also less expensive because you don't need an architect. I am basically opposed to all these star architects in the world of museums.

Compare the old Jeu de Paume in Paris, the way the paintings were hung and presented (even if it wasn't ideal, it was a place that had rooms, which had walls), with the Musée d'Orsay and its grand-opera-style entrance. For instance, Rousseau's *War* is completely lost in these surroundings; *Rouen Cathedral*, abandoned on a wall in the middle of a room, has taken on a completely different meaning; masterpieces are hung up just anywhere, because what is important is the work of the architect. I think it's a pity.

When I go into a museum, I like to see how the exhibits are arranged. The major requirement is that they should be able to

ment that are the expression of one unique individual, the artist. For my part, I am increasingly in favour of freedom of space inside the museum, of walls that are really walls and spaces that are really spacious. A museum should be a container for the works, not the works illustrations of an architectural idea.

At the end of the 1970s another revolution occurred in which far greater sensitivity started being shown towards materials. The major sculptors of the present, Carl André and Serra, have done away with the plinth, breaking with the ideology of the 'monument', which has nothing to do with sculpture but is just a convention; hence the demand for neutral flooring.

It seems to me that the time has come to display a work of art in such a way that it appears to its best advantage, to give it again an aura, a radiance, which would be different from that which it had when shown simply as part of a collection. One of the ideals that gets overlooked with the fantastic rise in prices is that a work of art is not to be measured in cash terms; there is something in it to which no commercial value can be assigned.

WFFM: What do you think about the staging of exhibitions outside the museum context?

H.S.: Artists today are very keen on retrospectives, and so a large number of them are held. But it sometimes happens that they are staged in vast spaces never used before for exhibiting works of art. This was the case with the exhibition held in Venice in the old Zattere salt warehouses, in 1975, for *Les machines célibataires*. Recently, in Vienna, in the stables of the Empress Maria Theresa, a sculpture exhibition was held in a huge undivided area. I myself am currently organizing an event in the old Hamburg flower market and, for the third time, an exhibition in the chapel of the Salpêtrière in Paris. All these new situations offer artists an opportunity to exhibit their works in spatial configurations differing from those represented by museums, which always remain the same. I also feel an increasing desire for my exhibitions to be experienced as absolutely unique events, with their own poetry, so that the visitor will no longer feel like asking, for example, how much it costs. I called the last exhibition I staged (in a Berlin railway station), *Outside time*. ■

[Translated from French]

# Museums—from the ground up

Wolf Tochtermann

Architect, graduated from the Faculty of Architecture at the University of Stuttgart; since 1969 has worked with Unesco's programme on human settlements. Has published various articles on traditional dwellings and earth architecture.

Museums' evolution around the world is astonishing. One could hardly point to an architectural subject that has inspired, as much as museums have, the best contemporary architects, not to forget the builders since architecture of high quality is unquestionably the result of a happy marriage between a client who knows what he wants and a talented designer.

Competitions, finished projects and publications follow one another at a steady pace, and continually growing collections require new spaces and new installations both to shelter them and to present them to an audience increasingly enthralled by works of art, crafts, history or technical objects.

The relevant investments are also remarkable: countries, provinces and municipalities spare no expense in endowing themselves with prestigious monuments for prestigious collections. The first phrases of James Stirling's opening remarks on the occasion of the inauguration of the Staatsgalerie in Stuttgart, Federal Republic of Germany, in 1983 may be read with interest in this context:

I would like to think that our work is not simple and that, within the design of a building, for every act there is a counter-act. We hope that the Staatsgalerie is monumental, because that is a tradition for public buildings, but we also hope that it is informal and populist...

This is no longer the dusty temple of art frequented by a few followers come to contemplate with religious fervour the masterworks created by human genius. Today, and we should be glad of the change, museums have become open and transparent spaces, meeting places which are welcoming and equipped with all means, including audio-visual means, of putting visitors at ease and enabling them to encounter known or anonymous creators and the products of their creation.

## 'Machinery': needed?

In many cases, the museum itself has become a work of art visited for its own artistic qualities and it is not surprising that James Stirling wanted his museum in Stuttgart, at the beginning, to be open to visitors for a few weeks before the works of art were installed in it. It even happens that a museum competes with the works it houses: the container dialogues with the contents, and, to be frank, some museums' quality surpasses the interest aroused by their collections.

It may, however, be asked whether this extraordinary passion for conserving, preserving, documenting and archiving the past down to its minutest details does not also have a worrying side, does not reflect a not entirely healthy concern to know and analyse our past to the detriment of the present and of contemporary creation. It is difficult to find even a few examples of new schools of art or crafts or industrial design that have received attention from the relevant authorities on a par with that accorded to museums.

Impressive investments for documenting and underscoring our cultural identity (and that of others), for preserving an assured and reassuring heritage are made, but only meagre funds are appropriated for teaching the arts and allied disciplines. This, unfortunately, is the way things stand in a large number of countries.

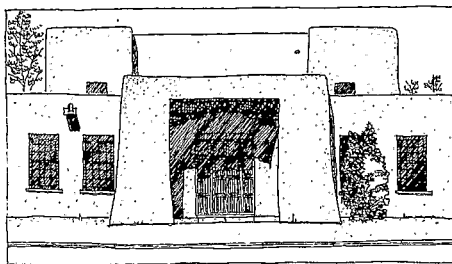
And there is another aspect of the question. When speaking of culture, the usual distinction between industrialized and developing countries must not be

made. Many countries that today face overwhelming economic difficulties have contributed in a highly significant manner to the culture of the human race. Yet very few developing countries indeed have been able to create the structures and museums required for the adequate presentation of the remembrances of their prestigious past. But do we really always need highly sophisticated 'machinery', these temples of marble and glass that museums have become, to encounter our past? Could we not find other means, rooted in local know-how, that could be suggested for building museums in countries that cannot or do not wish to encumber themselves with monuments? Do there not exist centuries-old architectural traditions using local materials and ingenious techniques for their expression?

To my knowledge, only two museums exist that were built with local materials (raw earth, in the event): the National Museum of Mali, at Bamako, and the Historical Library of the Fine Arts Museum at Santa Fe, New Mexico, United States.

I am not suggesting that we 'go traditional' for tradition's sake alone, or that we say to the less-well-off countries that they should build out of earth or bamboo, while steel, glass and marble would be the preserve of the wealthy. What I do suggest is that every tradition is part of cultural heritage—and that holds equally true for the object exhibited *and* the structure in which it is housed. ■

[Translated from French]



The Historical Library of the Fine Arts Museum at Santa Fe, New Mexico, United States.

Drawing by the author, after the publication *Architecture de terre*, Paris, Georges Pompidou Centre, 1986.

## Coming up...

The next number of *Museum* is an invitation to explore two themes that are not daily fare for most museum people around the world: Museum Issues in the South Pacific and Museums, Literacy and Literacy Work.

1990 is International Literacy Year and several reports show how museums have

been celebrating the origins, development and uses of the written word. Questions are also asked:

- Can rock art be considered 'pre-literate documentation'? If so, should it continue to be classed as 'prehistoric'?
- Where did movable type first appear?
- How can museums best show and explain such vast social movements as mass adult literacy campaigns and the

universalization of primary education for children? (Responses are offered from Cuba, France, Nicaragua and Kazakhstan.)

Happy reading!

P.S. Does your museum have—or do you know a museum that has—a sports team? An article about it could help even a number on 'Museums and Sports' that we plan to publish on the occasion of the next Olympic Games.

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