Scientific Journal

Journal scientifique

ETHICS, PRINCIPLES AND METHODOLOGY

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INTERNATIONAL COUNCIL ON MONUMENTS AND SITES
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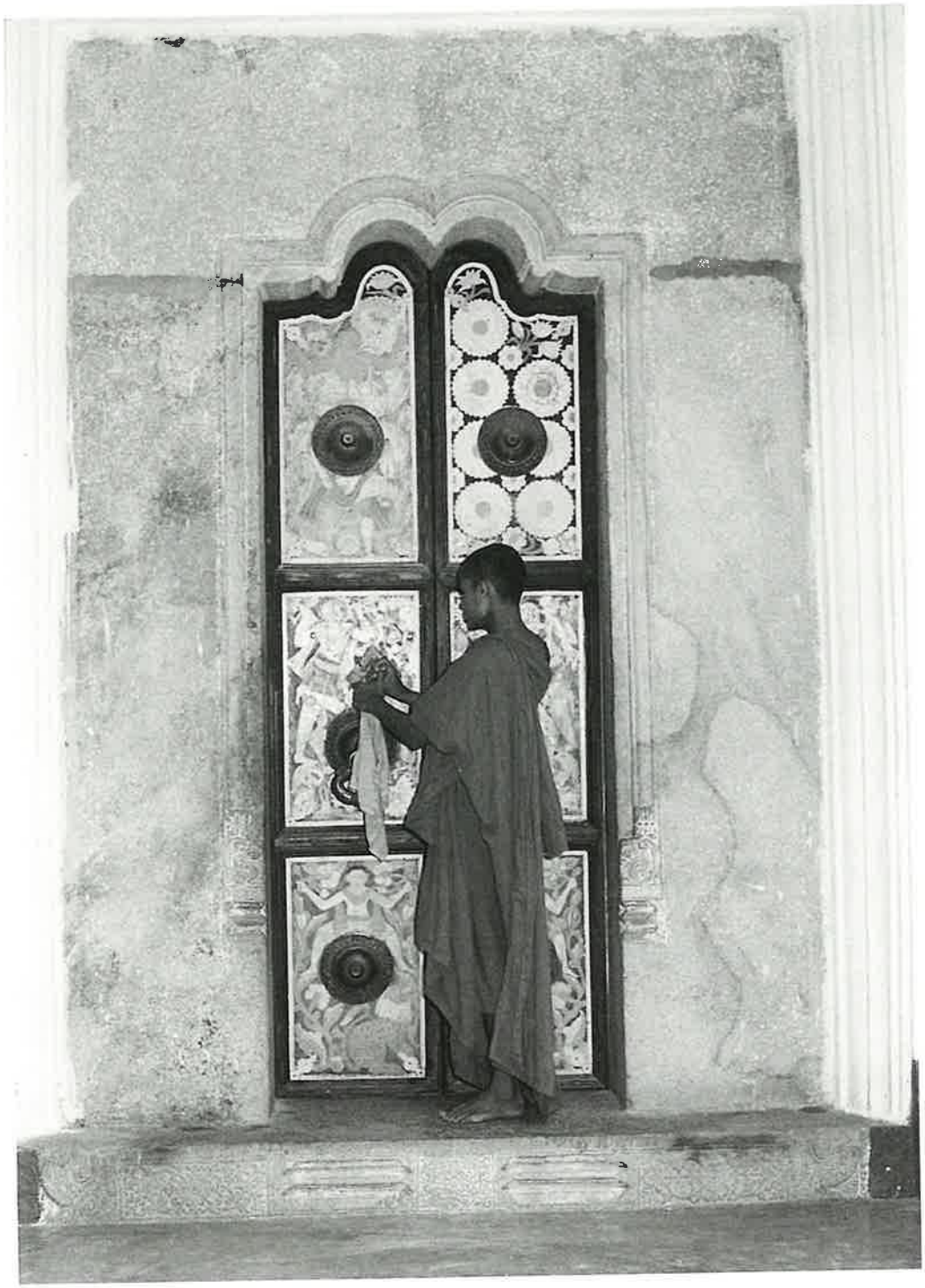

Entrance to the Sanctum Sanctorum of the Vijesundaramaya, Asgiriya. Buddhist Temple at Kandy, Sri Lanka.

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FOREWORD

Foreword

Roland Silva
President, ICOMOS

Dear Colleague,

We have stated many times over that the Scientific Journal of ICOMOS is the main medium of professional communication. It is for this reason that we have attempted to get all Nations from the different regions to report on their special findings connected to the profession of conservation. Our over - enthusiasm went as far as to even label one of the bi-annual journals as, "Articles of Members". This image has been changed in the present Journal which reflects the sum and substance of the articles of members but bears the title, "Ethics, Principles and Methodology".

This second number in 1995 of the Scientific Journal has eighteen articles from nearly half that number of countries. Subjects such as "Authenticity and Identity" or "Memory and Oblivion", and the principles covering a "Sustainable City" or the "Charte de Venise", are presented in depth together with the methodologies of recording and proper conservation in essays such as "Aerial and Close-Range Recording" or the "Conservation of 'Little Netherlands,' in Semarang".

It is this mixture of different tastes and varied regions seen in the third dimension of time, that will provide the right diet for the younger and older members of this professional body of ICOMOS to appreciate our work. We would in the same breath request our members of over 6000 in number and covering the most senior professionals of the world to record their experiences and to make these available to the future generations of conservators.

Although the Journal will be limited to a few print-outs, and the limited copies will end up mainly in exclusive libraries, the research elements listed within will be placed in "internet" so that the wider world of researchers will have access to them from any part of the world and at any time of the day and night and on all days of the week.

We take this opportunity to congratulate the research scholars who have on this occasion generously shared their specialized knowledge, thereby setting a fine example to their colleagues and prompting them to do likewise.

We salute our authors and congratulate them for their generosity.

ECOLOGY

Towards the Sustainable City

Sherban Cantacuzino

When Bramante died in 1514 Rome was regaled by a satire which ridiculed his proposal to rebuild St. Peter's. Arriving at the Gates of Heaven, Bramante is accused by St. Peter of sacrilege. Bramante refuses to enter unless he is allowed to redesign both heaven and hell. There is more to this satire than meets the eye. It depicts the architect as arrogant, ambitious and extravagant. It ignores the fact that the Basilica of Constantine was more than 1000 years old, in a perilous structural state and no longer able to serve the needs of the Church. Today there would be no new St. Peter's because the demolition of such a venerable building, however derelict and useless, is no longer acceptable to us. The satire also ignores the fact that it may sometimes be necessary to destroy the heritage of the past in order to create the heritage of the future. It poses the question, what is the built heritage and suggests that yesterday's reject may become tomorrow's treasure. By putting all the blame on the architect, the satire ignores, above all, the role of the all-powerful patron, Pope Julius II, who ordered the demolition of the old basilica and commissioned Bramante to design him a new one.

Architecture and cities have always been the products of a collaboration between patron and architect. The importance of the patron - the client - is paramount, and to the absence so often of a real client must be attributed so many of our failures in urban development today. But this is not what I want to talk about, even if I come back to it later on. I wanted to show, through the High Renaissance satire, that Julius II acted under none of the constraints that prevail today. The only thing that has not changed is the status of the architect, who remains the ready subject of satire.

What are the forces, the dynamics, which are going to shape our cities? What are the constraints under which we are going to have to operate?

It is only too easy to take for granted the invention of the microchip and the communications revolution which is taking place all around us. This is probably because it is not very physical. Indeed it is very small, silent, largely invisible and the speed at which it operates is quite beyond our grasp. By comparison the Industrial Revolution was extremely physical - large, visible and noisy. A journey by railway must have made a much greater impact on the mind than the use today of the fax machine.

We have been hearing for at least 20 years about the imminent demise of the large office and about the redeployment of the workforce in small satellite offices and in the home, each person with their own computer linked to the outside world. These things are now at last happening. With the money running out, the days of the large office were bound to be numbered, if only because of its essentially uneconomical nature. Rank Xerox estimated that with associated space and staff support systems, an employee in their London office cost them two-and-a-half times his salary. There is also evidence that the productivity of a person working at home with a computer is between 30 and 100 per cent higher than that of a person working in a large office[1]

The decentralisation of jobs will lead to a fall in demand for office space in cities, relieve traffic congestion and reduce energy consumption. Shell Mex House in London is half empty and the company would like to sell it. The

dramatic reduction in numbers is the result of a fundamental reassessment of the company's needs which in turn resulted in changes to its structure. The diagram changed from a centralised one, where the London office was a headquarters, to a nuclear one, where the London office survives as part of a chain of smaller offices. Fundamental changes in the external world require fundamental changes in the internal structures of a company if it is to stay in harmony with the world. Shell, which is 100 years old, undertook a study a few years ago to discover what it was that enabled some companies to survive and others not. One of its more significant conclusions was that "companies which have changed successfully have made full use of decentralised structures and delegated authorities." [2]

It is a lesson from which governments could well learn. The welfare state, a paternalistic form of centralised government is seriously threatened by a chronic shortage of money due to a shrinking tax base. The British Government still spends more than 40 per cent, and the governments in Europe more than 50 per cent of the national income. Labour costs in Germany and Japan are about 200 times, and in Britain and the United States well over 100 times, labour costs in China. As labour costs in the advanced countries are reduced in order to compete with the much lower labour costs of Asia, so the taxes that can be raised from them will fall.

More serious is the fact that the new information age is making it possible for an increasing number of people in the higher tax-paying brackets to work anywhere in the world provided they have a telephone, a fax machine and a computer connected to the Internet, as is already the case of some 24 million Americans - (more than 10 per cent of the working population). It would seem that tax can only be levied on people working inside a country's jurisdiction and on transactions which can be captured by the taxing authority. So with the top 5 per cent of taxpayers paying half the United States' income tax, it is not surprising that the Clinton administration recently claimed the right to tax its citizens worldwide, in an attempt to dissuade Americans from giving up their citizenship and their tax responsibilities.

It has been predicted that the Internet, with the other electronic systems, will become the main market place in the world, on which the majority of the larger business transactions are likely to be done. The welfare state will therefore break up, not because right wing politicians want it to, but because it is entering a period in which the resources will diminish while the demands increase, due to widespread unemployment and under-employment, and the increasing number of retired people who will completely alter the proportion of employed to unemployed. The size of the American tax base, once electronic systems are fully developed, could be as low as 10 per cent (which is what the 19th century average was,) as against today's 40-50 percent. [3]

A somewhat different but equally illuminating view on the dynamic nature of the microchip suggests that by the late seventies Western societies had reached their moment of choice: either to make government control over economic life effective or to shrink the state and restore the market system. They chose to a greater or lesser extent to restore the market system, and found themselves helped along quite unwittingly by the accelerating communications revolution. What followed was the spontaneous deregulation of economic life. Its agent was the microchip. The microcomputer is seen as the antidote to the collectivist virus - to "democratic planning", in other words, which had been the West's answer to "Soviet planning" since the Second World War. The microcomputer triggered the breakup of the huge top-heavy corporate structures developed in the era of 'Fordist' mass-production, the deregulation of financial markets, and the creation of today's 'global economy'. Collectivism became unworkable because what was to be controlled had become invisible, disaggregated, or beyond the reach of national governments.[4] With very much less public money in the foreseeable future, the market system is bound to prevail. Planning has in any case long ceased to be a creative system and has become mainly preventive - a kind of negative system which stops both the bad and the good, and allows the mediocre.

For cities, the market system has not been favourable. There has been no control, for example, over the use of the private car, yet traffic congestion is one of the main reasons why people want to move out of cities. Traffic congestion is also a considerable drain on a nation's economy, some £15 billion a year in Britain, a figure which could easily escalate if the situation got worse. More and more governments are recognising that traffic calming measures in towns are preferable to building new or widening existing roads, provided always that they are supplemented by better traffic management, stricter parking controls, improved public transport and (possibly) road pricing. In Britain, despite grossly inadequate investment in public transport and continuing privatisation, there has been a revival of interest in tram and rapid transit systems, seen, for example, in the installations at Manchester, Sheffield and Croydon. But even if there was adequate investment in public transport, there would have to be the political will to restrain the use of the private car and so encourage the shift from private to public transport.[5]

Curitiba, a solid conservative middle-class city in Southern Brazil with a population which has tripled to 1 ½ million

in the last 30 years, has gone against the trend in urban planning, common enough all over the world and universal in Brazil, of assuming and ever-increasing dependence on the car, and has concentrated on developing a road network with a public transport system based on buses for its expansion. This has relieved the commercial pressures on the historic city centre where streets have been pedestrianised and old buildings converted to new uses. Curitiba now uses 25 per cent less fuel than the average city of its size and 30 per cent less petrol per vehicle. With buses accounting for around 80 per cent of private trips in the city, pollution is considerably lower than in other comparable cities, and there is little traffic congestion, even though the city has 500,000 cars, the highest per capita ownership in Brazil.[6]

One of the worst products of the market system, and most damaging to cities, is the shopping centre. The British Government has finally advised that regional shopping centres should only be allowed if they do not threaten the vitality of existing town centres. This advice has been reinforced by the House of Commons Environment Committee's report on the future of shopping centres, which recommended town-centre and edge-of-town sites as most likely to meet the criterion of accessibility by a choice of transport for all sectors of society.[7]

Shopping centres are the embodiment of what Sir Richard Rogers in his Reith Lectures called the "privatisation of cities for profit". Describing this process, he said, "gradually the semi-public spaces that once overlapped and enriched the public domain are privatised. The market becomes a shopping mall; the open university becomes a closed campus and, as this process spreads through the city, the public domain retreats. People who can afford it move out or bar themselves in". These transformations reflected the working of business committed to short-term profit, where pursuit of wealth had become an end in itself. Far greater emphasis was needed on citizen participation in design and planning, as well as a government initiative to regain democratic control of cities.

Public participation and community action, concepts which have been accepted for a long time but which have remained peripheral to city planning now look as if their time has come. It may be true that the almost total lack of public participation in the planning and development of London's docklands was due to the absence of a coherent group fighting for local community interests,[8] but it is hard to believe that such a group would not have materialised had the London Docklands Development Corporation wanted it to.

In contrast, the City Planning Department of Seattle was directed to produce a plan with as much public involvement as possible, which would fit another 70,000 people and 150,000 jobs into the city in the next 20 years. The resulting urban village strategy - an infill strategy at a variety of scales - makes the traditional neighbourhood centres the focal point for life in Seattle, subjecting them to an increase in residential density and linking them with an express bus system. The goal is to encourage the development of urban places which make life easier and better for people who choose to live more compactly and rely less on/the motor car. Neighbourhood planning programmes allow the neighbourhoods themselves to work out strategies and projects for which they are given money to hire their own planning consultants. Provided the projects meet the goals, they are eligible for capital funds.[9]

The absence of a real client in so much modern development, on which I have already remarked - (housing and shopping malls, for example) - is another reason for promoting real public participation, because we, the public, can often become surrogate clients. Take for example public open space, from simple spaces between buildings to public parks and gardens. These belong in a very real sense to the people, and community action is the only hope in the absence of local authorities with civic pride and sufficient money to improve and maintain them.[10]

The British Royal Town Planning Institute gives a Community Planning Award to encourage participation.[11] The Royal Institute of British Architects has a Community Architecture Group which recently launched its 'Percentage for Participation' campaign, to popularise public involvement in the design process. It is expected that 'Percentage for Participation' will be adopted widely by local authorities, housing associations, private developers and community groups to make sure that all developments take full account of the needs and aspirations of the community which has to live with and sustain the end product.

The Community Architecture Group is at pains to point out that this initiative is not just about social housing: all architects and planners should be involved and even wholly commercial projects will benefit from it: master planning is the area in which the most extensive consultation with the community is needed and "Much argument, time and money could be avoided", according to Richard MacCormac, (a former president of the Institute) "if masterplanning and urban design were part of the planning framework at the outset of the development process for large-scale, multi-use sites,..... the visual effects of planning objectives could then be made part of public negotiation at an early stage."[12] Examples include a private housing project, where each buyer is being consulted on the details of their

new home; the urban renewal of an area decimated by a 1970, shopping centre; a new community centre where the funding council realised that imposing a new building on the community could lead to disaster and decided on a participation process "to create a sense of ownership and the rehousing of 90 families from four huge tower blocks in two- and three-storey terraces, a project initiated by the tenants who chose the architects, raised the money and acted as clients for their individual homes."[13]

There is evidence, also, that the consultation process is a valuable development tool which attracts money and tends to be commercially successful. 79 per cent of the feasibility projects funded by the Community Architecture Group have gone ahead in some form. In addition the annual grants given out by the Community Architecture Group, which amount to some £100,000, attract a further £4.8 million from other sources, while for completed projects this figure jumps to £39.6 million.[14] Funding sources in Britain, other than local authority, include the Department of the Environment's Estate Action Programme, City Challenge and the European Regional Development Fund, as well as other European Union and local grants.

There are many other instances suggesting that the constructive involvement of the public in planning and development is 'taking off'. The British Secretary of State for the Environment, who seems to be passionately interested in the environment, recently issued an open invitation to members of the public to use their local knowledge and expertise to help create new designs and developments which would leave a lasting legacy for future generations. Local participants must first identify a site whose development would bring benefits to their area. Examples might include proposals for new buildings in a sensitive location, developments for an unused or underused site, or redevelopment of an eyesore. The campaign calls for a development brief to be drawn up, accompanied by several design options to spark public debate. Plans would then be considered by a panel of experts, chaired by the Secretary of State, for inclusion in a national exhibition.[15]

Related to public participation, because it involves the users of town centres, is Town Centre Management, a relatively new concept which has been shifting from maintenance and policing normally associated with shopping centre management, to the more pro-active business of collaborating with town centre users and local businesses in spearheading specific town-centre initiatives. While there were only a handful of such managers in 1990, there are now almost 130 in post throughout Britain, and the formation in 1991 of the Association of Town Centre Management is further evidence of this emerging profession. Some managers in places like Birmingham and Cardiff are now even being given the discretion to manage their own capital allocation by the local authority and other sponsors, and last year the British Government endorsed the principle of Town Centre Management by recommending that local authorities, the private sector and the local community should together consider appointing a town centre manager.

Funding management, maintenance and physical improvements to the town centre have traditionally been the responsibility of the local authority, but since 1979 successive Conservative governments in Britain have cut local authority spending, insisting that the private sector should become the main provider of services. The direct link between local rates and providing the rate-payer with services was severed, while the "unified business rate" continues to be levied by central government but is not spent in the area where it is collected. Local government and its town centre are the losers. Central government, one might say, has behaved in a precisely contrary way to the companies which the Shell study found had adapted successfully to changing conditions: it has acted in a centralist manner by depriving local government of what authority it still had.

Of course the private sector is an unpredictable source of funding, especially after a severe recession. Retailers in Britain who are already paying the "unified business rate" resent having to contribute further to town centre services and often find that they simply cannot afford to make contributions to town centre initiatives. The Civic Trust has suggested that more extensive central government support for the concept of town management, together with seedcorn capital, would help to underpin local partnership, and Kent County Council has already shown how this can work with the introduction of IMPACT environmental improvement projects in ten towns. The County Council's seed-corn finance has attracted other public and private finance and encouraged the formation of partnerships between county and district councils, and the private sector.[16]

The greatest threat to the town centre remains the popularity of out-of-town shopping centres, despite the British Department of the Environment's directive that only out-of-town shopping centres which do not threaten the vitality of existing town centres should be allowed. In Britain today about 75 per cent of all shopping space is still concentrated in town centres, but out-of-town retailers who commanded a bare 5 per cent in 1980, now command more than 20 per cent. A recent House of Lords decision gave permission to the Trafford Centre, a one-million square feet green-field site outside Manchester, and the pressure will undoubtedly continue while only a handful of major private-sector companies - Boots, Marks and Spencer, W H Smith, and a few

others - are prepared to commit themselves nationally to a long-term strategy of working closely with local government to preserve the vitality of town centres.[17]

In Britain public participation and community action has already been extraordinarily effective in conservation and in the protection of the heritage and the environment. Just as the lost battle of the Euston Arch paved the way for the successes at Covent Garden and Bath, so the lost battle of the M3 motorway at Twyford Down lead directly to the abandonment of the East London River Crossing (and the saving of an ancient woodland) and, even-more significantly, to the Department of Transport's considerable reduction of its road programme. It is of course an exaggeration, (and you will immediately think of examples which prove the contrary), but I believe it to be essentially true that, with the exception of schemes like power stations, where it can be argued that the good of the nation must come first, proposals which are intelligently and resolutely opposed by the local community don't stand a chance of getting built. This is real "people power" and, having acquired it, people will have to learn to wield it responsibly. I am convinced that public involvement and community action will develop and become a considerable force in the coming years. It seems to be inevitable that this should be so. People have developed a great interest in their environment, mainly due to better teaching and the media (and in Britain to the Prince of Wales). At the same time there are never again going to be enough conventional jobs to go round, irrespective of the government in power. The four-day working week is already with us and there is talk of the three-day week, which would leave people with an enormous amount of time for leisure and voluntary work. There will be increasing redundancy, and people will retire earlier and live longer, so that there will be a great number of people with a great deal of spare time on their hands. It seems obvious that some of this spare time and energy is going to be channelled into collaborative efforts that will influence, perhaps even control, all local developments.

In this context it is interesting to note that the British Royal Society of Arts (or, to give it its full name, the Royal Society for the Encouragement of Arts, Manufacturers and Commerce) has launched a millennium project, Project 2001, which sets out to create new social capital out of voluntary activity, forging new routes for the great shift which has to take place from the obsolescent aim of "full employment" to a more satisfying and realistic alternative of "full engagement". Project 2001 will demonstrate the value of voluntary action on the nation's balance sheet and the difference that people acting locally can make to their own lives and the lives of others. It will identify, encourage and recognise the community initiatives implemented by local people acting voluntarily for local benefit which most successfully contribute to the creation of new social capital. Its ambition is to create a "University of the Community" for the new millennium, with a student population comprising all ages from school-leavers upwards, which will be found in hundreds of locations throughout the country and which will hold together through networks based on existing organisations like sports centres, libraries, colleges and clubs: and through the use of information technology to link and promote information networks. There will be no need for new teaching facilities and expensive new buildings to make this work. It is an investment in the human capital of the country rather than in bricks and mortar,[18] and reminds me of the Indian architect, Charles Correa's remark, made in relation to self-build housing in the Third World but equally relevant here, that a country's greatest resource is its people.

The Royal Society of Art's Project 2001 is essentially "sustainable": and sustainability and greening as dynamics which will shape our cities is what I want to talk about in the third and last part of my talk. Sustainable development, (a phrase nowadays much used and abused), is rather well defined (if somewhat lengthily) in the Department of Environment's "Quality in Town and Country".[19] "Sustainable development is about how we develop in this generation without stealing from the next .... (it) means a war on waste - (wasted land, wasted energy, wasted travel time). We must continue to target derelict and underused land in our urban areas, both to regenerate the economy locally and to relieve the pressure for green-field development in the wider countryside. The conservation of energy in buildings, and of fuel in cars, saves money while benefiting the environment. By contrast, the disparate zoning of different everyday activities - (working, living, shopping) - increases demand for travel and reduces the speed of travel as roads become congested. Our urban areas cannot accommodate unlimited growth in road transport. Nor can our environment tolerate it. We need to find ways in the longer term of containing our dependence on the motor car and managing its impact on urban life ..Applying the principle of sustainable development means understanding the impact of our actions upon others. It also means facing up to the effect of all our individual actions taken together. It means placing civic responsibility - our duty to others and to the future - at the centre of our lives". Or, much more briefly, to quote the World Commission on Environment and Development - the Brundtland Commission - of 1987, sustainable development is "development that meets the needs of the present without jeopardising the ability of future generations to meet their own needs".[20]

Sustainable development must start with the local community and the individual. Sir Martin Holdgate, President of

the Zoological Society of London and a member of the United Nations High Level Advisory Board on Sustainable Development, insists that "action requires partnership. It must involve all sectors of society ..Solutions must fit their environmental, economic, social and cultural context. They need to be home-grown, rather than imposed by outside 'experts'... What we all have to conclude... is that every community does need to look hard at its life style, at the environmental resources on which it depends, at the need and opportunity to enhance both, and at its interactions with other communities".[21]

What constitutes a sustainable city? A city with high densities - the densities of London's Bloomsbury with its green squares: a compact city which is walkable and has a network of public footpaths. A city which has an efficient public transport system run on energy generated from renewable resources, which encourages the pedestrian, the cyclist and the use of public transport, and discourages the use of the private motor car. A city with parks and green open spaces which are protected and properly cared for. A city which demands energy-efficient buildings, promotes the production of environmentally friendly goods and services, restrains environmental polluters and industries which depend on non-renewable resources for their energy, and insists on recycling urban waste. A city, finally, which respects, restores and re-uses its old buildings.[22]

For cities - (and remember that by the year 2000 three-fifths of the world population will be living in cities) - are the major polluters of air and water, and the major consumers of the world's dwindling non-renewable energy resources, which means fossil fuels - (coal, oil and natural gas). Buildings, the great majority of which are in cities, use some 50 per cent of all the energy consumed in the western world. Cities are the major dischargers of CFC gases which deplete the ozone layer and reduce its efficiency at screening the earth from harmful ultra-violet light. Higher levels of ultra-violet light could cause more skin cancers and cataracts, and, more seriously, have an adverse effect on human immunity. Ozone depletion could reduce crop yields. Cities are also the major dischargers of carbon dioxide which causes a thickening of the protective blanket of greenhouse gases which cover the earth, making it more efficient at absorbing infra-red radiation and increasing temperatures at the earth's surface. This global warming could lead to the partial melting of the polar ice caps and thermal expansion of the oceans resulting in flooding and the loss of low-lying land: a shift in deserts and fertile areas: and more unsettled weather with a greater range of temperatures and rainfall rates.[23]

The situation, worldwide, is a very serious one: rising populations, crippling poverty and malnutrition, the depletion of vital resources, global pollution. Christopher Stephen, Director of the United Nation's Indigenous Development International, believes in the importance of making use, before it is too late, of the long-standing essential wisdoms and knowledge of indigenous peoples which has seen the earth through former crises, and the recourse to those traditions which offered solutions to such crises. He points out that non-Western cultures of the 'indigenous' peoples of Australia alone have over 1500 mainstream symbol traditions and warns that with their disappearance (because children don't use them any more) the knowledge tends to vanish with them. "Where this indigenous knowledge has ties to over 200 million years of knowledge," he states, "the consequences are enormous. Take, for example, the Australian aboriginal fire tradition. Fire dreaming paintings are a reflection of the 40,000 year old 'fire stick farming' which effected better root growth foraging, stimulated plant seed growth, manipulated grass strains and shoots for animal grazing, and structured hunting drives. Fire had both a restorative and moral imperative in preserving aboriginal lifestyles and guaranteeing a sustainable ecology".[24]

I have made what you may consider to be a digression not because I believe that the Australian aboriginal fire tradition will save the earth, but to stress the need to make use of the fullest range of "essential wisdoms" so as to be able to understand and agree what are the right environmental actions to take. The British Department of Energy tells us, for example, that 50 per cent of energy demand in Britain could be met by supplies from renewable resources like wind, wave, sun, biomass and waterpower.[25] In matters of design we must, as a start, make sure that all buildings, new and old, constructions and conversions, are energy-efficient, which means making full use of the sun, people and machinery for their heating, and ensuring that they need only be lit artificially at night when the energy of the sun is not available. The English architect Michael Wigginton has suggested that, "if we as designers could halve the energy used in buildings, and if the other national users pulled their weight, we could move the country towards absolute energy sustainability since no fossil fuels would be needed".[26]

We also have to be aware that the actual construction, or conversion, of a building uses energy, and that this could be as significant as the energy consumption of a building in use (especially when this energy consumption has been reduced). So we have to know the amount of energy incorporated in the building materials through their processing, manufacture and transportation - (information, incidentally, which already has to be supplied by law in Germany). I would add that the energy crisis has shown how important it is for the design of a building to take into account not only

the cost of construction, but the cost of its maintenance and of its performance in use - life- cycle costs, in other words.

But what, you may ask, has all this to do with architecture, with the making of forms and spaces, good proportions and pleasing textures? Cannot energy-efficiency in buildings be achieved invisibly without any effect on the architecture? After all, an old building can be made energy-efficient without changing its appearance. The answer, of course, is yes but only in an inefficient and uneconomical way. Here again I would like to quote Michael Wigginton when he says "..good design has economy at its centre: the basis of the aesthetics of structures, (and of sport), economy is a bit like an essential principle of evolution. I have long preached that beautiful spanning and beautiful forming should be like beautiful running: apparently effortless, and using energy in the most economical way. The athlete does not try to run "aesthetically". He tries to run efficiently and the beauty of the actions comes from this. If you accept this, then there is no reason why an invisible part of architecture, (the flow of energy through it as it satisfies its purpose as a protector and enclosure), should be considered differently from its physical support. If energy and mass are indeed the same thing, we must consider them both equally".[27]

We only have to look at the traditional ways of modifying the climate in the hot arid zones - the mat-screen and the wind-catch for example - to appreciate that these forms are a direct response to needs - efficient, economical and beautiful. Hassan Fathy's analysis of the mat-screen, too long to quote here, is a veritable poem which I strongly reommend.[28]

So to conclude, there is going to be less and less money for public works - (for new roads, new public buildings). There are going to be fewer new buildings as a whole, and certainly many fewer offices, (of which there is a surfeit in Britain). I do not mean by this that we will continue, or indeed wish to continue at a level of zero to negative economic growth. Nor do I mean, as some environmentalists would maintain, that the notion of sustainable economic growth is a delusion. The market system, as we have seen, is here to stay. Martin Holdgate has pointed out that "we live in a world dominated by market economics, and must pursue sustainable development within that context. And there seems no reason why we should not. Markets are, after all, adjustment systems. They are flexible and decentralised, and as such are efficient in matching supply to demand at local as well as larger scales. The problem is not the market, but the values we put into its equations and the way we constrain, or facilitate, its operation ..... once such values are available, more accurate analysis of the costs and benefits of alternative resource use can be made. The marginal opportunity cost of change can be assessed. It is made up of the cost of depleting a natural resource, the benefits foregone by those who might have used it in future, and the costs imposed on others by the depletion. Such calculations may well indicate that retaining a natural system is more economic than changing it, and that pollution prevention pays because it is cheaper than the losses that the emissions cause (Royston, 1979)".[29]

What public money there is will go towards environmental improvements - (improving public transport, upgrading and converting existing buildings to new uses, retro- fitting existing buildings for energy conservation, improving spaces between buildings, planting trees and making new green open spaces, cycle tracks, foot paths and playgrounds). We will learn to make the best of what we've got, and to make what we've got last. Citizens, through voluntary action, will demand energy-efficiency in buildings and curbs on the use of the private motor car, or, the use of a new type of 'clean' car, in town centres. There will be a return to economy and thrift, and "the replacement", as Mumford said, "of the machine-orientated metropolitan economy by one directed towards the goods and goals of life".[30]

If buildings are the key to energy conservation and, since the vast proportion of buildings is in towns, it might be thought quite reasonably that town planning and building regulations are the key to ensuring energy efficiency in buildings. And of course to some extent they are. Moreover, despite the predominance of market economics in the last 15 years, the planning system has held fast. But, it has become a negative force, preventing rather than promoting. , A planning system's only real justification is a work of art at the end of the day, whether it is a building, a city or a whole region. But this can only happen if the State - central and local government - undertakes development, which is something that governments all over the world have retreated from in the last 15 to 20 years, and are unlikely ever to go back to for the very good reason that there is never again going to be enough public money.

I began this article by recounting the satire which ridiculed Bramante's great project for the rebuilding of St Peter's. Fortunately masterpieces of art survive ridicule. New masterpieces are a rare occurrence today, yet the masterpiece, the great work of art, is necessary to us both as inspiration and aspiration. If I may go from the ridiculous to the sublime, last year I heard Alfred Brendel play some of Beethoven's late piano sonatas and found the following passage in the programme note which struck a relevant chord. "Beethoven's last piano sonata is a monument to his conviction that solutions to problems facing humanity lie ever within our grasp if they can be recognised for what they are and be confronted by models of human transformation.

Masterpieces of art are instilled with a surplus of constantly renewable energy - an energy that provides a motive force for changes in the relations between human beings - because they contain projections of human desires and goals which have not yet been achieved (which indeed may be unrealisable").[31]

Notes

1. Ledis 1991, from *Liveable Towns and Cities,* Civic Trust, 1991 p.88
2. Arie de Geus, "Companies: what are they?" *RSA Journal,* June 1995 pp. 26-35
3. William Rees-Mogg, "You can't tax those you can't catch", *The Times,* 29.5.95
4. Robert Skidelsky, "How can the West survive the next crisis of capitalism?" *The Times,* 10.6.95
5. *Liveable Towns and Cities,* Civic Trust, 1994, pp. 6-9
6. Tony Lloyd Jones, "Curitiba: Sustainability by design", - *Urban Design* January 1996 pp 26-32
7. Brian Waters, "Planning: Shopping centres", *The Architects' Journal* 20.4.95, p. 46
8. Eric Sorensen, Chief Executive LDDC
9. Gary Lawrence, "The Seattle approach", *Urban Design,* January 1996 pp 23-26
10. Gillian Darley, "How we lost the plot", *Daily Telegraph!* 13.5.95.
11. Royal Town Planning Institute, Memorandum of observations to the Department of the Environment on its discussion document "Quality in Town and Country". 1994, p.15
12. Richard MacCormac, "Designing Cities with democracy", *The Architects' Journal* 14.3.90, p.70
13. Louise Rogers, "Community Charged", *RIBA Journal,* July 1995 pp. 12-17
14. Chris Church as quoted by Louise Rogers, op.cit.
15. Jeff Postlewaite, "Gummer wants your ideas on making Britain brighter", *Evening Standard,* 7.6.95
16. *Liveable Towns and Cities,* Civic Trust, 1994, pp. 90-98
17. Rodney Hobson, 'New Life for traditional shops', *The Times* 27.6.95
18. *Project 2001,* RSA, 1995
19. *Quality in Town and Country,* Department of the Environment, 1994, pp. 2-3
20. World Commission on Environment and Development, 1987
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25. Robert and Brenda Vale, Department of Energy Paper 55, 1988
26. Michael Wiggington, "Architecture and Energy", Conference paper, Septemebr 1994
27. Michael Wiggington, op,cit.
28. Hassan Fathy, *Natural Energy and Vernacular Architecture,* Chicago, 1986, p.8
29. Martin Holdgate, op.cit.
30. Lewis Mumford, *The City in History,* Pelican Books, 1966, p.616
31. William Kinderman, "The Final Trilogy", Royal Festival Hall Programme for Alfred Brendel recital, 27.6.95.

Biodiversity, Culture and Endangered Species

Ulpiano T. Bezerra de Meneses

Culture and Diversity

At first sight, the title of this article seems to pay tribute to fashionable topics fed by the recent United Nations Earth Summit on Environment (Rio 92). However, my appeal to ecological concepts, instead of drawing the attention to opportunistic rhetorical analogies, aims at shedding light upon some of their implication which are also pertinent to cultural phenomena, even if common knowledge relates them exclusively to the domain of nature. As a matter of fact, concepts like biodiversity (life's potential of multiplying itself in endless forms adaptive to the most varied environments), genetic banks, sustainable development, etc., also go for cultural matters.

A basic statement is that diversity is a pivotal attribute of culture. Cultural diversity is neither an accident nor an epiphenomenon, but it accounts for adaptive necessities. Furthermore, the evolutionary potential (and therefore the capacity to face new situations) increases as adaptive specializations decrease. Such a decrease presupposes a tendency to the multiplication of cultural forms. The reverse is risky and hazardous, as manifested by societies centered in the intensive and specialized exploitation of a resource in mono-culture, for instance) or deeply engaged in keeping alive successful traditions: they may punctually attain high levels of efficacity but are disarmed to deal with the unexpected or the forces of change. Diversity henceforth, is profitable.

Cultural diversity, however, differs from its biological analogy under a capital aspect: it is instituted, created and recreated by human action. This is no place to discuss the matrix of cultural diversity and its outcomes through space and time. It is enough to recall that such a matrix implies the possibility -- inherent to human condition -- of enunciating meanings and conveying values. Consequently diversity within the *Homo sapiens sapiens* species (contrary to what happens with the remaining biological species), arises from choice be it limited by structural and functional constraints. Since cultural values, behaviours and objects are historical constructs and consequently mutable and contingently framed (and not a temporal or universal), they need to be identified as such and thus proposed for social acceptance. There is no genetic transfer of cultural values. Behaviour must be taught and learned. So, the very existence of cultural processes and products is in jeopardy when memory dissipates and meanings grow weak.

Endangered Heritage

The preservation of cultural heritage - which includes either values, meanings and representations; or practices behaviours and processes : or objects, artifacts and material products, or else the overlapping of all these - is a delicate and unstable action, for it undergoes both the structural forces of change and the circumstances of human contingency. As, for example, the hazards of power the interplay of conflicting interests, the establishing of groups or national identities (identity is always an answer to the problem of the "other"), the metamorphoses of economic, social and ideological patterns : all these variables rejoin the natural conditions or conservation and operate as agents of cultural change. The aftermath may be the disappearance of cultural products and processes. Nothing in such a dramatic picture, however, allows us to point to categories of cultural heritage as species in extinction. All these transformations, removals and replacements spring from the very nature of social and cultural dynamics. On the other hand, it is precisely within this frame of reference that the cultural heritage may act as an instrument to qualify human life and to deepen questions about its sense and values - instead of directing it into channels of shallow integrations and elusive harmony, thus assigning to cultural values a legitimising and anaesthetising role.

At any rate, although painful, "destruction" either in nature or in culture is part of the game (politically marked in culture), So when could one borrow the analogy of endangered species and what sense would this make anyway ?

The destruction of cultural objects behaviours or processes (be they, for instance, the Lascaux paintings, São Migueldas Missoes the Benin bronzes, Balinese dances,

Central European oral epics or oriental cookery) is sometimes the elimination of invaluable goods without possible refund. It means profound losses and a severe depletion of a frame of reference. However, it is necessary to recall that such cultural manifestations have for centuries (and, in certain cases, millenia) cohabited the world in isolation, mutually ignoring each other. The world-wide horizon ascribed to cultural heritage is relatively recent. Hence, from a strictly analytical (and historical) point of view, there is no point in converting this kind of loss into the menace of an endangered species, for its resulting effects are not fatal even if we allow for their eventual cumulative force. Yet there is one risk and it is extremely serious, imminent and irremissible : the growing unviability, in our society of cultural diversity.

The Loss of Cultural Diversity

The spread over the whole planet of a single economic system is a process accelerated and amplified since the Industrial Revolution. Nowadays as a result, necessities of the market prevail over necessities of use. Since the market tends to homogenise it seeks to domesticate differentiation. The corollary of consumption, set up as a paradigm, is the mass society: the individual face, the specific features, the cultural personality are deprived of their content or converge and become transformed into merchandise, too. Obviously this process is neither simple, linear and uniformly reductive, nor always apt to strike with the same efficacy. For example, mild accommodative reactions, like those felt by the EEC participation, or, on the other side, turbulent responses, like ethnic conflicts (interstate, national, regional) and religious wars are enough to make clear the variety of situations generated nowadays by these transnational forces in action.

In any case, according to this scenario, losses become irreversible, since they affect cultural life through one of its critical traits: diversity.

Post-industrial cities, particularly in the Third World, dramatically illustrate homogenisation's accomplishments. It is not a mere coincidence, for example, that the international *prêt-à-porter* in Architecture and Urbanism blends well with the autophagy responsible for the fading away of the urban tissue, or the unstable interrelation between urban piots and structures.

If the cultural capital is drained, society grows feeble and vulnerable (nature too needs natural reserves) . In the same way, when society compresses its frames of reference (hence reducing conditions of deepening historical consciousness), it turns into an absolute present, that is to say, it is limited to the possibility of contemplating its own navel (or what is left of it), alienated from other dimensions of space and time. Or else, during this process towards world-wide uniformity, it illusorily arrogates to itself the character of a biological phenomenon, naturalised and offered as universal, in such a way that only ideological or emotional reactions are possible.

Cultural heritage, obviously, may be the object of transformations in its form, function or meaning, in order to answer to society's transformations. So it plays not only the role of product, but also of vector. However, from the moment diversity is in danger, cultural heritage cannot be considered as a recyclable resource. Furthermore, it is important to consider that it is also a scarce resource : present and future times and their open creative potential are counterbalanced by past time's already accomplished and bounded productions.

Any seclusion of the past's dimensions jeopardises the intelligibility of change in human life (change and diversity correlate in a necessary way). It follows that present and future become deprived of meaning. It is suitable to recall that values and meanings do not operate solely as cognitive abstractions stored in the mind but become corporeal and express themselves empirically in order to actually intervene.

Biologically it is still possible to live in the present and future without acknowledging the past. However, inasmuch as the problem of meaning is introduced, such a possibility no longer exists. The same unbalanced pattern in the organisation of our society that works against the conservation and rational use of biological diversity also contributes to the extinction of resources essential to the cultural qualification of human life. The problem, one may realize at once, is only one and the same.

PHILOSOPHY, DOCTRINE, PRINCIPLES

Sur la modernité de la conservation des monuments

Yves Belmont

La protection des monuments de l'architecture se présente sous un jour à la fois moderne et archaïque. La modernité tend à isoler chaque monument, pour en faire soit un document, dans une approche philologique, soit une oeuvre d'art, dans une vision esthétique, tandis qu'une conception traditionnelle voit d'abord dans celui-ci un témoignage. Cette diversité d'approche, qui a été remarquablement analysée par Alois Riegl, ne débouche pas nécessairement sur des contradictions : elle se donne davantage comme un enjeu auquel se mesure la conservation qui y perd son absolu, mais qui y trouve son sens.

La conservation des monuments de l'architecture s'adresse à des édifices anciens, ou pour le moins empreints d'une certaine inactualité : elle ne saurait viser ce qui est en train de se produire, et qui semble aller de soi pour tout ce qui est ordinaire, ou qui engage l'avenir, pour tout ce qui est plus marquant. Cette permanente attention en direction de ce qui est en partie périmé ne doit pas dissimuler son caractère profondément novateur.

Ce caractère a été maintes fois souligné, et d'aucuns ont à l'esprit ces phrases célèbres de Viollet-le-Duc introduisant l'article "restauration" de son Dictionnaire raisonné[1] en énonçant que "le mot et la chose sont modernes", mais il n'est pas certain que l'on ait suffisamment réfléchi aux prémisses de cette affirmation. Il n'est pas certain non plus que l'on ait toujours su, en retour, en reconnaître les limites, car à une conservation "moderne" que l'on pare volontiers des attributs de la science s'oppose une conservation beaucoup plus "archaïque" à laquelle Viollet-le-Duc lui-même ne s'est pas soustrait. On doit en effet se souvenir de l'argumentation qu'il a développée en faveur du style gothique entendu comme style national et comme expression de la liberté de ses protagonistes : sous la clarté de son rationalisme se dissimule une beaucoup plus délicate revendication d'identité qui émaille toute son oeuvre écrite, et qui ne relève pas en propre de la modernité.

On s'efforcera ici, sous le mode d'une contribution à la réflexion, et non sous celui d'un compte rendu de recherche[2], de souligner cette ambiguïté, et ce non pas pour la dénoncer, mais pour tenter d'en relever le sens.

* * * *

Par monument de l'architecture on n'entend, de manière restrictive, que des édifices, parties d'édifice ou groupes d'édifices dûment répertoriés. Il ne s'agit donc pas, dans un premier temps pour le moins, de s'interroger sur des ensembles, ou sur des occupations entières, qui renvoient à une totalité géographique et historique. On adopte, conformément aux pratiques les plus répandues de la

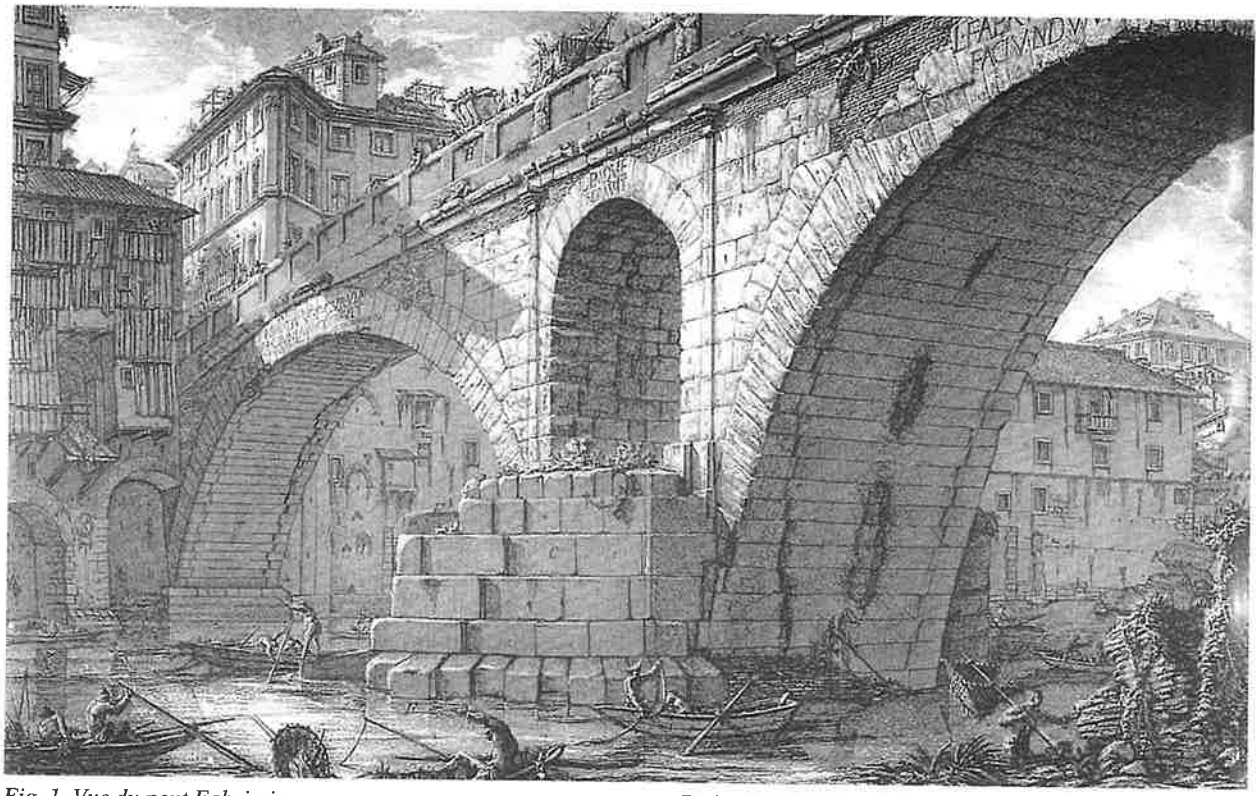


Fig. 1. Vue du pont Fabrizzio.
Antichita Romane, T.IV, 1756, d'après Janine Barrier, Piranèse.
Paris, Bibliothèque de l'image, 1995 (Droits réservés)

protection, le point de vue de la partie.

Ce point de vue, quoique fort critiqué en raison même de sa "partialité", est intéressant au moins à deux titres :

- Il est tout d'abord fidèle, comme cela vient d'être dit, aux pratiques de la protection. A défaut de pouvoir prendre appui, comme pour un musée, sur une collection, la protection des monuments de l'architecture est toujours basée sur un inventaire topographique et on ne saurait la concevoir autrement. Elle établit une forme bien particulière de muséographie de site (dont la spécificité a été analysée par Quatremère de Quincy tout au long de ses Lettres à Miranda[3]). Cette muséographie, sans se départir des relations que chaque site induit, reste fondée sur une distinction : ce qui est reconnu, protégé, puis conservé, restauré et présenté le cas échéant au public est clairement distingué de ce qui ne l'est pas, et il n'est pas dit par ailleurs que tout ait vocation à être protégé.

- Ce point de vue est dans le même temps plus fidèle au développement historique de la protection, qui a hérité, au moment de la formation des états modernes, de l'apport de quelques deux siècles d'une érudition qui a su, en Occident pour le moins, établir, avec une insatiable curiosité, un véritable musée de papier, pour reprendre l'expression utilisée par F. Choay[4].

Ce musée de papier répond point par point au musée de site, et il l'a précédé. Son intérêt épistémologique n'est pas à rappeler : il allie au relevé archéologique le plus minutieux les vertus de la comparaison et de la confrontation des sources et c'est bien à travers lui que la conservation peut se réclamer de la science. On se souviendra néanmoins qu'il s'agit là d'une science de l'homme, au sens où elle s'attache, par delà la matérialité des témoignages, à des faits de culture et non à des faits de nature. Elle se rattache à la philologie, qu'elle étend aux édifices et aux ouvrages qui acquièrent avec elle le statut de document. Ceux-ci deviennent des réponses et des questions, des pièces à charge et des pièces à conviction : ils prennent part au grand procès des entreprises humaines que conduit l'enquête historique. Et leur intérêt relève en premier lieu de leur individualité, sans qu'il soit préjugé de leurs relations, qui viennent ensuite et qui prennent d'autant plus de relief que leur singularité est mieux établie.

* * * *

Le statut de document laisse entendre une mise à distance dont on sait bien qu'elle est le préalable obligé de toute connaissance scientifique : le monument est l'instrument de la recherche du vrai. Est-ce pour autant qu'il faille confondre en une seule entité la bibliothèque d'archives et le musée, et avec eux le musée de papier et le musée de site? Les faits sont là pour nous dire que non, car

la mise à distance n'est pas sans conséquence.

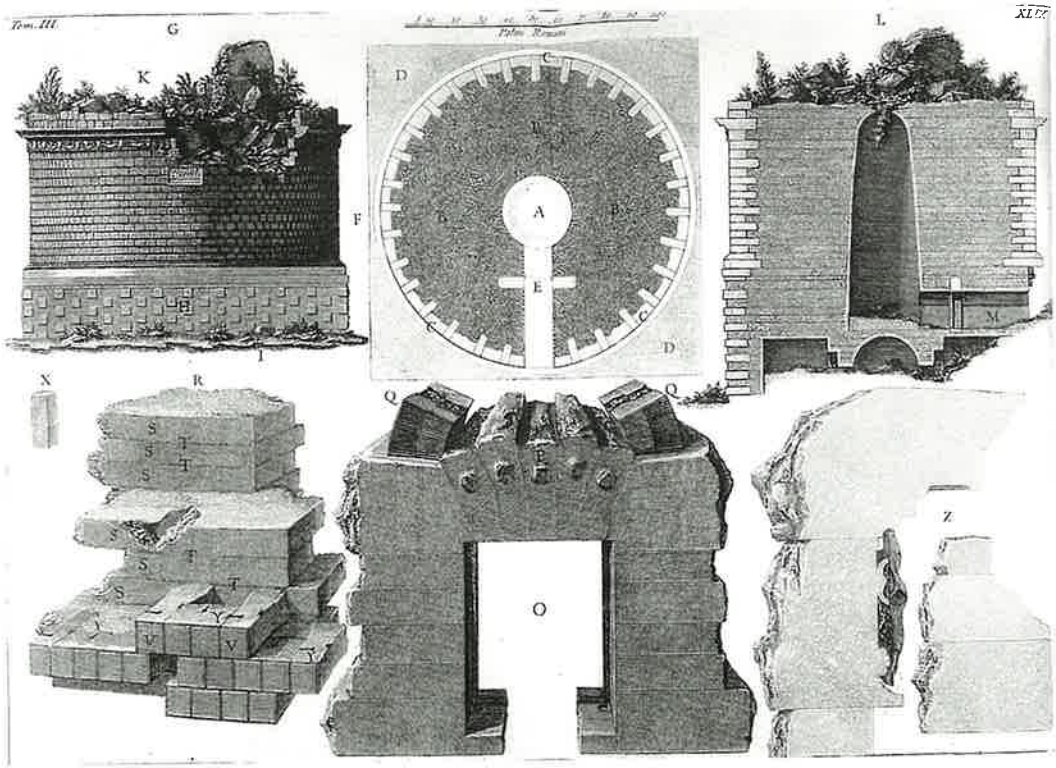
Le vestige ne témoigne en premier lieu que par sa forme et par sa consistance, par son donné physique, tel qu'il s'offre aux sens et à la perception, de telle sorte qu'avant d'être replacé par l'archéologie et par l'histoire de l'art dans la chaîne de ce qui le précède et de ce qui lui succède ou de ce qui l'entoure, il est donné en soi, dans toute son étrangeté, comme un objet esthétique. Cette dimension esthétique le renvoie en direction du domaine de l'art, entendu comme libre spéculation sur la forme, par opposition aux contraintes et aux déterminations que lui dicte l'industrie.

En dépit de tout ce qu'elle peut devoir à l'éducation du goût, la sensibilité esthétique est avant tout désintéressée, selon la définition qu'en a donnée Kant, et son désintéressement n'a d'égal que l'isolement de l'oeuvre qu'il lui est donné de contempler. La contemplation du beau prend la place de la recherche du vrai, mais elle en modifie subrepticement l'objet : ne sont de ce point de vue recherchés que les vestiges qui peuvent se réclamer de l'art. La beauté se présente comme l'aiguillon de la connaissance, mais elle la détourne en même temps à son profit : ce sont d'abord des ordres d'architecture que Brunelleschi et Alberti viennent inspecter au milieu des vestiges de Rome, et le pillage dont ces mêmes vestiges ont fait l'objet s'est realisé, abstraction faite des prosaïques réutilisations et réemplois, pour le compte de l'art.

On retiendra surtout ici à quel point toute attention exclusive à l'art est, dans sa nature, moderne. A l'instauration du vestige en tant que document répond l'invention de l'oeuvre en tant qu'oeuvre d'art. Pour se convaincre de cette modernité, on pourra revenir sur les premières pages du Musée imaginaire d'André Malraux[5] qui rappellent que l'art religieux a été un art du culte et pour le culte avant d'être vu et entendu comme un art pour l'art. Est-il bien raisonnable au demeurant de concevoir un art pour l'art ? Est-il permis de le concevoir dès que l'on sort de la sphère restreinte des seuls artistes, pour lequel il a assurément un sens, puisqu'il est pour eux une fin : la délectation moderne des oeuvres d'art, qui a gagné de proche en proche des populations de plus en plus larges, n'est pas aussi détachée dans les faits que dans son principe.

S'il n'est en effet pas possible de congédier l'originalité de cette consommation, qui s'est modifiée au fur et à mesure de son élargissement, il n'est pas permis non plus d'ignorer tout ce qu'elle doit à une relation beaucoup plus primitive, reposant sur la reconnaissance et guidée par la recherche d'une identité. Par delà son isolement, le vestige signifie, et peu importe de savoir si ce qu'il signifie est altéré ou non. Le simple fait qu'il soit un témoignage, une trace, une marque d'humanité suffit, et il est bien souvent, ne fusse que par ses formes ou par les conditions de sa

Fig. 2. Plan du mausolée de Cecilia Metella, Antichita Romane, III, 1756, d'après Janine Barrier, Piranèse.



réception, beaucoup plus que cela.

Par delà le vrai, et par delà sa reformulation dans le beau se profile la question du bien, qui nous questionne personnellement, au plus profond de nous-mêmes. Le témoignage de l'existence de l'autre - auquel je ne peux être indifférent car il m'instruit - traverse tout l'édifice de la conservation, de la même manière qu'il traverse toutes les sciences humaines, et il est bien loin, pour ne pas dire à l'opposé de la neutralité des travaux de l'érudit ou de l'entière disponibilité de l'esthète : le vestige signifie.

La conservation se retrouve de la sorte prise dans ce jeu subtil de valeurs qu'Aloïs Riegl[6] s'est employé à démêler dans son Denkmalkultus. Ces valeurs ne sont pas, dans leurs applications, aussi contradictoires que ne le laissent entendre certains raisonnements, qui tendent par exemple à opposer, en se référant à la Charte de Venise, la reconstitution à la stricte sauvegarde des vestiges ou à la distinction des ajouts. En dépit de tout ce qui les sépare les unes des autres comme autant d'espèces, ces valeurs ne tendent en effet pas nécessairement, dans leurs applications pratiques, à se contredire : elles tendent aussi à se répartir, en accord avec les conditions du moment et du site, en raison de modes opératoires et de modalités. On admet sans difficulté que l'on reconstitue un décor, et que l'on laisse un champ de fouille à sa complexité et à son relatif chaos : le mode se tient au plus près du vieux sens du mot moderne, qui ne désignait pas à l'origine un avènement mais une réponse adéquate[7].

Il y a autant de place pour une conservation des "documents" que pour une conservation des "oeuvres d'art", et que pour une conservation enfin des "témoignages". Il y a surtout une protection qui est à inventer chaque fois, en accord avec les circonstances qui lui sont imposées, et qui sont tout autant médiates qu'immédiates, et à court terme qu'à long terme. La conservation y perd son absolu, mais elle retrouve en contrepartie son sens, qui la rend résolument moderne, car pertinente et en accord avec son lieu et son temps.

Commentaire des illustrations :

L'oeuvre gravée de Piranèse tient aussi bien de la fidélité de l'observation que de la puissance de l'imagination: elle convoque tour à tour l'art et le savoir, tout en se mettant au service de la gloire de Rome. Elle illustre à merveille les trois aspects essentiels de la conservation.

Notes

1. Dictionnaire raisonné de l'architecture française. Paris, F. de Nobele, 1967.

2. Ce texte est néanmoins rédigé en se référant à certains passages d'une recherche en cours sur l'Esthétique des sites.

3. Lettres à Miranda sur le déplacement des monuments de l'art de l'Italie. Paris, Macula, 1989.

4. L'allégorie du patrimoine, chapitre II, "Le temps des antiquaires. Monuments réels et monuments figurés". Paris, Seuil, 1992.

5. Les voix du silence. Musée imaginaire. Paris, Gallimard, 1965.

6. Le culte moderne des monuments. Paris, Seuil, 1984. traduit de l'Allemand par D: Wieckzorek. Le Dr. Ernst Bacher nous a fait part de la reprise de l'édition originale de 1903 dans le recueil qu'il a préparé et qui s'intitule "Aloïs Riegls Schriften zur Denkmalpfege, herausgegeben und kommentiert von Ernst Bacher", Studien zu Denkmalschutz und Denkmalplege, Band XIV. Vienne, Böhlau Verlag G.m.b.H, 1994.

7. Tomas Maldonado, Il futuro della modernita, annexe I : "Da modernus a moderno". Milan, Feltrinelli, 1988.

De la Charte de Venise à celle des villes historiques

Jean Barthélemy

Depuis trente ans et l'adoption de la Charte de Venise, l'ICOMOS a poursuivi et développé son action dans une perspective de plus en plus large. Cette évolution était prévisible; elle était même pratiquement inéluctable au regard de l'élargissement de la notion du patrimoine, tel qu'on a pu l'observer dans l'opinion publique au cours de ces trente dernières années.

Parallèlement, cette extension pose de nouvelles exigences; pourrons-nous y faire face? Autrement dit, en urbanisme, réussirons-nous à faire valoir les principes inscrits dans la Charte des villes historiques comme ce fût le cas en restauration des monuments?

Plusieurs facteurs me poussent à l'optimisme. Le premier est de constater le regain d'intérêt envers le patrimoine urbanistique en tant que valeur significative et exemplative d'une organisation spatiale transcendant l'évolution des modes et des techniques. C'est un fait capital dont les points de confirmation sont multiples et répartis aux quatre coins du monde. Les théories teintées de futurologie technologique ont fait long feu. Cinquante ans d'efforts déployés pour bouleverser les structures urbanistiques séculaires ont échoué. Personne ne croit plus aux rêves fous des visionnaires. Paris ne sera heureusement jamais surplombé d'une résille métallique et de cellules d'habitat déposées par hélicoptère.

Le deuxième, je le trouve dans la résurgence des sentiments d'appartenance à une histoire, à une culture et à un terroir. Dans un monde qui en amplifiant ses interdépendances se banalise, manifestement l'homme éprouve le besoin de s'intensifier : il cherche à se reconnaître comme un maillon d'une longue chaîne de filiations dont il participe à perpétuer l'originalié. Dans cette recherche, le rôle du patrimoine urbanistique est fondamental. La singularité des lieux, les siècles l'ont façonnée dans des contextes géographiques si divers et sous l'impulsion d'une dynamique si complexe qu'elle reste la matière culturelle sans doute la plus riche que l'on puisse soumettre à la curiosité intellectuelle des hommes. Bien entendu, cette richesse n'est pas également répartie sur l'ensemble des villes et, à l'intérieur d'une même ville, sur l'ensemble de ses quartiers. Néanmoins, d'année en année, la rigueur du tri, qui naguère permettait de focaliser l'intérêt sur les seuls témoins prestigieux de l'histoire, s'estompe. Plus encore, des expériences récentes ont montré qu'aucun paysage de banlieue ne méritait d'être rejeté a priori, mais que, pour y agir efficacement, il fallait prendre appui à la fois sur une bonne intériorisation de l'ambiance du lieu et sur une compréhension intime des préoccupations et des mentalités des habitants locaux.

Dès lors, si, après avoir remisé les schémas urbanistiques modernistes, l'architecte s'attache au "génie" des lieux d'implantation comme catalyseur de son imagination créatrice, la cause est gagnée. Mutatis mutandis, la Charte des Villes Historiques aura trouvé le même juste équilibre que la Charte de Venise. D'un côté, en remettant en valeur et en imposant si nécessaire l'échelle et la configuration de l'urbanisme traditionnel, elle constituera un facteur de stabilité. De l'autre, en confrontant la créativité aux mille singularités des sites, elle canalisera les énergies d'innovation dans leur juste créneau.

Ici encore, c'est la difficile émergence d'une nouvelle sagesse. En faisant davantage confiance aux expériences urbanistiques séculaires qu'à des schémas théoriques plus ou moins hasardeux, l'imagination créatrice peut prendre une nouvelle orientation. Au lieu de s'étourdir du réel, elle doit au contraire s'en imprégner. Elle doit en saisir toute la complexité et relever au sein de cette richesse les moindres indices permettant d'orienter la spécificité de la réponse architecturale. Elle ne procède plus d'une distanciation a priori par rapport aux réalités. La topographie du lieu est une donnée qui stimule l'originalité de la solution et non plus une contrainte que la technique est chargée d'éliminer. Les particularités de l'environnement urbain sont des éléments de référence qui orientent la recherche vers un renforcement de l'identité culturelle.

* * * *

Examinons cela de plus près. Je le ferai en prenant deux

angles d'attaque : le premier concerne la théorie de l'urbanisme; le second partira du consensus sur la nécessité d'améliorer l'environnement.

On sait que la première fonction qui s'est révélée à la réflexion des urbanistes est bien entendu celle de la circulation : l'adaptation du territoire aux contraintes des nouveaux systèmes de transport. "L'urbanisme ne s'est attaqué jusqu'ici qu'à un seul problème, celui de la circulation", écrivait Le Corbusier dans la Charte d'Athènes. C'est là, selon lui, une voie étroite et insuffisante de la mission qui lui est dévolue. L'urbanisme a quatre fonctions principales qui sont : premièrement, d'assurer aux hommes des logements sains, deuxièmement, d'organiser les lieux du travail ; troisièmement, de prévoir les installations nécessaires à la bonne utilisation des heures libres; quatrièmement, d'établir la liaison entre ces diverses organisations par un réseau circulatoire. Pour lui, ces quatre fonctions sont les quatre clés de l'urbanisme. La deuxième étape était franchie.

Depuis lors, limitant ces idées à la sécheresse de leur énoncé - habitat, industrie, loisirs -, la pratique du zonage s'est superposée aux tracés des circulations. Les fonctions se sont quelque peu affinées grâce à l'adoption de quelques définitions supplémentaires dans la légende des plans, mais la méthode "fonctionnaliste" n'a guère évolué. Certains ont mis leur espoir dans de grandes théories spatio-économiques, parfois très élaborées dans le domaine mathématique. Mais, objectivement, celles-ci se sont avérées à ce point tributaires de données incontrôlables et subjectives que leur application concrète reste douteuse. On peut constater notamment que l'établissement du plan régional est directement confronté à ce type de difficultés.

Mais, le temps est venu, me semble-t-il, tout en ne niant pas la nécessité de prévoir pour chaque groupe de fonctions les aires d'implantation les plus favourables, de dépasser ce niveau élémentaire de l'urbanisme. Le temps est venu de comprendre que la ville assume des fonctions d'un tout autre ordre. Ce n'est donc pas l'abandon de la théorie fonctionnaliste que je vous propose, mais sa révision et son élargissement. Car, la fonction la plus spécifique de la ville n'est-elle pas, avant toute autre, celle d'avoir la faculté de sceller en un tout, dense et complexe, la plus grande diversité possible de fonctions élémentaires, d'être une structure d'accueil exerçant un tel pouvoir d'attraction symbolique et culturel qu'elle puisse intégrer les inévitables contradictions de la vie. L'image urbaine, définie par Kevyn Lynch, est l'une des facettes de cette fonction prépondérante dont l'urbaniste est le gardien privilégié. Cette thèse est à mettre en paralléle avec la réflexion d'André Chastel au sujet des petites villes: "Quand on parcourt ces petits organismes urbains, l'imbrication et l'équilibre des fonctions sautent aux yeux, non leur seul agencement dans l'espace, mais leur lien assuré entre tous les membres et leur profonde solidarité".

Considérer la mission de l'urbaniste, non pas au niveau de l'implantation des fonctions, mais bien à celui de leur cohérence et de leur équilibre, lui demander d'être soucieux davantage du tissu d'accueil et de la symbolique urbaine que du zonage, c'est lui demander d'être ouvert à la complexité et aux contradictions humaines, c'est le sortir des certitudes du quantifiable et lui faire subir les anxiétés du qualitatif.

Dès lors, s'impose une nouvelle méthodologie urbanistique. Celle-ci suppose des analyses morphologiques et sémantiques approfondies du patrimoine architectural et une excellente connaissance des besoins et des aspirations sociales du quartier. Bien entendu, seuls, le dialogue et la concertation avec la population peuvent permettre à l'urbaniste d'acquérir la compréhension approfondie de ce second volet de sa mission. Quant aux analyses morphologiques, il faut craindre qu'elles ne soient trop cartésiennes et trop élémentaires. Le grand mérite de ces structures urbaines que nous ont laissées les siècles, c'est précisément d'être spécifiques, uniques, adaptées aux contextes sitologique, socio-économique et culturel, donc éminemment complexes et rebelles aux généralisations abusives. C'est pourquoi, il faut rejeter les extrapolations théoriques, les abstractions et les généralisations trop faciles.

De plus, il faut être conscient qu'une nouvelle orientation éthique s'élabore inexorablement comme alternative à la croissance industrielle incontrôlée et l'urbaniste est aux avant-postes. Sa mission est de la concrétiser aussi rapidement que possible dans les plans d'aménagement. Or, pour l'essentiel, cette nouvelle orientation d'esprit conduit à mettre à l'honneur la durabilité et la qualité, à tenir compte des coûts écologiques réels de chaque opération et à préconiser le recyclage, l'adaptation et le réaménagement.

Nous en conclurons qu'une des conditions fondamentales d'amélioration fonctionnelle de nos villes dépend de la sagesse des urbanistes: qu'ils soient conscients de leur rôle de gardiens anxieux, attentifs et incorruptibles du tissu social complexe de la ville; qu'ils agissent en serviteurs fidèles de l'image urbaine, de sa cohérence, de sa force et de son originalité; qu'ils soient conscients enfin que la volonté de réutiliser judicieusement le patrimoine architectural et le souci de retrouver "l'échelle juste" pour toute opération nouvelle, loin d'être démodés, correspond-

ent parfaitement à une évolution souhaitable de notre société. Précisons notre pensée sous le second angle d'attaque: celui de l'environnement.

* * * *

Incontestablement, les problèmes de l'environnement sont à l'honneur. Mais, aurons-nous résolu les problèmes de l'environnement urbain en rendant clairs et propres l'air et l'eau de nos villes? L'effort en serait grandement méritoire, bien entendu: "Merci Messieurs les techniciens de la dépollution...". Mais, à ceux qui, parmi nous, seraient tentés de s'en tenir à cet aspect des choses, je dirais que l'homme est infiniment plus complexe. Se différenciant en cela totalement des animaux, ses besoins et ses aspirations vont bien au-delà de tels aspects biologiques.

Les dimensions et la convivialité des espaces urbains, la qualité des cheminements, le jeu des façades, la personnalisation des logements, bref le grand tournoi où s'affrontent la multiplicité des formes, mais aussi leur harmonie,... le concerne directement. Les suites données à cette formidable joute peuvent le rendre triste et déprimé, ou, au contraire, heureux et dynamique.

Il est frappant de constater à cet égard combien la constitution traditionnelle de nos villes répondait à la multiplicité et à la complexité de contraintes locales, qu'elles soient bio-climatiques ou socio-culturelles, dans un souci constant d'une saine économie des moyens et d'une prise en compte du long terme. Sous toutes les latitudes, l'architecture vernaculaire constitue à cet égard un modèle écologique dont des études récentes ne cessent d'approfondir les différents mérites.

Il faut se rappeler que c'est le développement tout à fait exceptionnel des villes dès le début du 19e siècle qui a causé la césure entre urbanisme et architecture. Auparavant, la croissance des villes n'était le résultat que de l'addition progressive des constructions suivant des règles d'organisation basées essentiellement sur la nature des lieux et sur les bonnes relations de voisinage. Quand il s'agissait d'interventions à plus grande échelle, les projets étaient élaborés avec le souci d'inclure autant les problèmes de forme que d'organisation, autant les qualités spatiales intérieures qu'extérieures dans un véritable dialogue avec l'environnement préexistant. Les grands architectes et théoriciens de la renaissance ont tous été imprégnés de cette unicité de pensée dans la transformation de l'espace, quelle que soit l'échelle de l'intervention.

Depuis lors, la notion de dimension économique s'est imposée comme prioritaire parmi les critères qui définissent les transformations de l'espace; et il ne s'agit pas de n'importe quelle dimension économique. Celle qui est appliquée assez généralement est étroite et réductrice. Elle parcellise les problèmes. Elle subdivise chaque investissement et elle mesure pour chacun d'eux une rentabilité tronquée, car superbement ignorante du long terme et des incidences latérales qu'entraîne fatalement toute action.

C'est bien ce qui confirme la pratique du zonage, traduction dans l'espace physique du principe de la spécialisation appliquée dans tous les autres domaines de l'activité humaine. La ville cesse dès lors d'être un organisme, une totalité synergique. Elle devient une agglomération de différentes parties bénéficiant chacune de ses règles propres, dont dépend linéairement la forme.

Face à cette situation, il faut s'efforcer de réinsérer un concept intégrateur tenant compte du caractère spécifique et de l'échelle de chaque ville. Il faut vouloir obtenir une véritable symbiose de toutes les actions sur la ville. Il faut ne penser à l'organisation de l'espace qu'en parfaite conscience de la forme qui en découlera et ne penser à la forme de l'espace qu'en parfaite conscience du rôle que celle-ci pourra jouer dans l'organisation générale. En effet, c'est déjà dans le talent d'imaginer les virtualités architecturales qu'offre un programme d'investissement que réside l'une des facettes du secret d'un bon aménageur; et, à l'inverse, l'autre facette est sans doute liée à son aptitude à évaluer correctement l'efficacité globale - économique, sociale et culturelle - des formes spatiales.

Dans cette perspective, il s'agira de dégager de nouvelles stratégies urbaines plus singularisées, - sensibles aux réalités concrètes locales -, plus globales, - attentives aux retombées latérales de toute action sectorielle -, plus approfondies, soucieuses autant des détails de mise en oeuvre d'une politique urbanistique que des schémas fonctionnels d'organisation,- et plus participatives, - attachées à s'assurer consensus et collaboration active auprès des populations concernées.

Pour ma part, je retiendrai laconiquement dix propositions comme base de ce nouvel état d'esprit:

1. être à l'écoute des gens sans renier ses propres convictions nourries aux sources de l'expérience;

2. analyser le problème posé en le plaçant dans un contexte suffisamment large;

3. être économe de l'espace en luttant contre l'éparpillement géographique;

4. donner la priorité à la requalification des zones les plus dégradées;

5. être attentif à la configuration et aux proportions des espaces collectifs;

6. optimiser la compatibilité entre les fonctions nouvelles et les structures existantes;

7. valoriser les potentialités spécifiques du paysage urbain;

8. chercher l'échelle et le ton justes en intégrant le bâti nouveau dans son environnement;

9. répartir judicieusement les nouveaux signes urbains en tenant compte de leurs valeurs symboliques et communautaires;

10. être conscient que la qualité du cadre de vie dépend de la cohérence d'une infinité de détails.

The Problems of Authenticity and Identity as reflected by Preservation of Archaeological Monuments

Julius Gy. Hajnóczi

It is imperative to make not only vedutes of antique ruins, but also iconographies - ground plans - and orthographies - façades, to permit their restoration.

Raffaello

The beginnings of archaeology and of the history of the arts reach back, rather than to a barren, unproductive period to a flourishing, creative period of the arts.

Burckhardt.

Abstract

The roots of monument preservation reach back to the Renaissance, achieving independence when traditions from the past began to be revalued, and formal authenticity emerged as a professional ethical problem.

Authenticity has two interpretations: on the one hand it is the measure of the genuineness of a thing; on the other hand, it is condition of the correctness of those made with it. Thus authenticity may be considered from either the principial-theoretical or practical aspect.

Identity is of great importance in monument preservation. It is a power able to accomplish, to defend the face of the culture which itself is considered authentic.

Dead monuments are par excellence monuments, since they are not complete, since only their history, has survived, and since they are "useless". All these things make them particularly suitable as tools for interpreting the theoretical and practical problems of monument preservation

Preservation of Monuments and Time

The preservation of monuments is capable of conquering time: it can bring it to a halt, conserve the past, evoke forgotten times, and bring the past to life again in an orderly manner - what magical qualities ! The preservation of monuments first developed after the Middle Ages, as a result of a revolutionary interpretation of the historical tradition. But another two centuries had to pass before it was given its present name, when it became an independent artistic and scientific discipline.

The buildings of ancient times, even if they survived man, were finally left to decay. Many of them stood for centuries, others fell victim to the new times, but latently lived on, provided their building materials were lasting. The world is full of buildings and cities built of old, already reused materials - testimony to the material continuity of architecture.

The Revolution of Forms in Italy

Then, somewhere in Italy, around the end of the Trecento, the many ruins of ancient buildings were beginning to be viewed not only as quarries; their form was thought interesting as well. They recognised the fact that forms bear manifold values, existential, aesthetic, functional, historical and intellectual.[1] A further unique characteristic of form is that organically it changes and, within a general framework and as a tradition, it lives on as a survivor together with its details. However, something else happened: a past, long forgotten formal world came to life again, bringing about values, all as

a result of the intellectual motivation centred around the spectacular revival of classical culture.

The early revolution of *rinascita,* revival in architecture, had the following characteristics:

* the chief source of ancient Roman forms was ancient ruins;

* the study of these (drawing, surveying) inspired new artistic work;

* getting acquainted with the actual forms was enhanced by a surviving, major encyclopaedic work, the ten books of Vitruvius, with the help of which theory could be compared with practice;

* such a widespread evocation of the past brought the search for new identities to an end;

* the interpretation of this heritage was an uncertain matter: not the functional purpose of details, but the actual age of forms. Thus the ideas recognised as authentic were interpreted in an "inauthentic" way: and finally;

* in the great vogue for building, many of the examples perished (due to the reuse of their materials).

So, during these giddy times, from heaps of decayed stones, a new architecture was called into being, which thought of as ancient-an era when Alberti, for instance, thought be had created an Etruscan temple in San Andrea of Mantua, when caryatids were carved according to Vitruvius' description, without ever having seen an original, when the Greek temples at Paestum and in Sicily were thought to be Roman, and when Rafaello was appointed "supervisor of monuments" in vain, for the popes destroyed more of Rome's ancient heritage than the past millennium.

The following phenomena, in *statu nascendi* form the basis of future monument preservation:

* the value of historical buildings;

* the relationship between contemporaneous and present - day architects;

* identity and material culture;

* authenticity and historical buildings;

* the decay and destruction of historical buildings and, at the same time, efforts to conserve them.

In early modern times, having shed the yoke of Gallic mentality, i.e. Gothic art, Italy finally found a new identity. An organically developed achievement of European culture, it was to be considered, a revolutionary act, yet an anachronistic and paradoxical one because it was not the brief and stormy, evening-out of some developmental abnormality or "lag": it brought about development in that it revived an ancient culture. This, in itself, is mysterious and at present there is no other explanation for it than that the material heritage of classical culture which had seen considered immature. began to represent value alongside the spiritual heritage which had always been esteemed. Why the concentration on the past grew into a process and became a characteristic of European culture of modern times, is even more mysterious.

Memoria

Plato, Aristotle and the medieval clerical philosophers as well as many Renaissance thinkers, held that architecture was not complete because unlike the fine arts it was incapable of imitation. Now this idea is contradicted by the history of architecture. Monumental architecture began by imitating, the Cosmos and Nature but to skip to the end of the story, an ingenious French architect "stole" ship stacks, portholes, Pullmann-carriage windows, etc. bringing them into architecture. Equally important, however , apart from the imitation of the outside world, is the "interior" imitation of architecture, i.e. the imitation of itself. It matters little that the imitation will never be identical with the original: it is the intention that counts.[3]

One of the characteristics of architecture, is the reuse of familiar forms. At the Renaissance, however, this desire to imitate came as an eruption. It was an age of invention, and, after many centuries of trying to unfold the mysteries of heaven and earth, worldly values came to the fore. Man discovered his body besides his soul, as well as nature, his surroundings, and the world. The desire for knowledge inspired him to discover history which he understood little at first. But step by step man succeeded in clarifying an image of the ideal - first of Roman and Greek ruins in Italy, then of similar ruins in the eastern regions of the Mediterranean which were, at the time, blurred by the life and time - concepts of the Orient. Finally this world was extended to include the Far East, for European architecture has always sought new inspiration. Then, once again, in this chaotic search for new forms. Europe turned its attention inwards: during the Romantic era national traditions came to the fore, and with historical knowledge growing more exact, scientific discussions of the architecture of the world were begun, fostering the development of the universal recollection of historicism and eclecticism. This complex process is further

coloured by the fact that, besides *exoticum,* the architecture of *prehistoricum* (as well as "natural" and vernacular architecture, thought to be related to it) was a source of inspiration and, finally, that a new architecture was in the making which at first denied all identity.

The above short historical overview intends to give some idea of the chaos from which two trends clearly emerge, namely the fact that the notion of looking back in time did not end with the Renaissance (e.g. the architecture of our day.) and that the vast knowledge of the past was beginning to be considered valuable for its own sake, apart from its well - known activating effect, or the effect past knowledge has on the present. It was then that the practice of the preservation of monuments was established.

Unquestionably, the preservation of monuments developed as an integral part of the value system of European culture. And it was this European axiom that made its way into various other cultures, originally representing different value systems.

The memoria of European historical styles and the preservation of monuments (an independent branch) lived together for a fairly long time. This cohabitation was not entirely flawless, because the self-clarification of the now independent discipline was delayed by many inherited habits. One thing is certain: most theoretical questions concerning the preservation of monuments can only be answered presupposing this symbiosis, even if the three major phenomena of our age, the pullulation of settlements, the catastrophes caused by wars, and the intertwining of cultures has undoubtedly, given rise to new problems.

The Local and Universal Values of Monuments

The values of monuments may be interpreted on a narrow or wide spectrum, hence its local and universal values. Theoretically, this dual evaluation does not exist, because wherever a monument should be, it will always signify the embodiment of universal human knowledge and aesthetics. Thus even a monument considered characteristic and worthy of preservation by only a small community will bear universal values, because it is the intimately concrete elements that define its character , and because it is known and liked by only a few people who most often do not feel the need to propagate this value of theirs. Cultural tourism. one of the characteristic features of our century, is sensitive to such local values, the validity of which has extended beyond their own boundaries. People will travel to these places to share that sensation.

Furthermore, the cultural organizations established after World War II, decided that historical, and other (e.g. natural, etc.) values, which were considered attractive representations of universality, should be treated after a number of trials as world heritage. The reason why these trials were encouraged was because recognising something as world heritage was the responsibility of local communities. It originates from locals who no longer wish to conceal their rightful dignity, and who offer the symbols of their own local identity for recognition by humanity's universal identity. And one of the conditions of the experts judging the matter is that the monument should be authentic,

Defining the concept of authenticity however, is not an easy matter, and until now only intuitive attempts seem to have been made. As a matter of fact, the problem of authenticity is twofold, because we have to decide, on the one hand, whether and why the object itself is authentic and, on the other, whether it was treated authentically throughout the ages. Thus authenticity has both a practical and a theoretical approach to it. It is at once pragmatic and axiomatic, We may add that when discussing its practical aspects, the question concerning the authenticity of the *future* treatment of the object must be answered,[5]

The Ethics of Authenticity

Similarly to the historical development of the preservation of monuments, authenticity may be defined by studying its historical aspects, working along the same lines, but going further back in time, to the classical cultures which became such an inspiration to Europe many centuries later.

The relationship of Hellas "the creator" and Rome "the adapter" gave birth to the methods of evaluating the remains of material culture which has remained valid up to this day. Rome was aware of the fact that, among other things, it could never rival the perfection of the fine arts and architecture of Hellas. But Rome could never acquiesce in her state of being *"sine nobilitate"* (snob with out its pejorative meaning) and began to imitate its recognised model, causing a scandalous affair among circles adhering to Roman culture's own traditions. To make things clear. Let us take a look at sculpture and painting.

It is a well -known fact that the products of fine arts were, at first, tools/instruments to which magical properties were attributed: defence, warning, spiritual matters, etc. From Hellenic times, however, statues and pictures gradually lost their significance as tools. The focus of the problem shifted to become one of an aesthetic nature. By Roman times it had become a cultural need: the enjoyment of art almost in the modern sense, This cultural need often resulted in unethical deeds, such as simply taking back the admired work of art to

Rome, to decorate villas or gardens. But more important is the fact that Hellenic works were copied by the hundreds in the Hellenic tradition, using identical forms and materials - lucky for the Renaissance, for without these copies it would have had even less to admire: too bad for Winckelmann, however, who created the genesis of the history of art based on inauthentic subject matter.

Buildings, of course, could not be transplanted. Yet something similar to transplantation happened when Egyptian obelisks were carried to Rome and were then copied. But in Tivoli the philhellenist " travelling emperor" Hadrian designed and had built all the great buildings he had seen in Hellas and Egypt. Of course these could not have been identical with the originals, but the airy architecture using many columns evoked Hellenic traditions, while representing *par excellence* Roman architecture through its extravagance. Villa Hadriana may be called an architectural imitation, or an eclectic building, the intention of which was the same as the intention behind the Renaissance . And the extent to which Rome's middle and lower classes had absorbed this mentality is well demonstrated by the first guide book in history, written on Hellas by Pausanias, to cater for the needs of contemporaneous cultural tourism.

In the Middle Ages works of art were replaced by relics. Because of the finite number of surviving originals, many copies were made. As far as architecture was concerned, it was the famous churches of the past that served as a model (usually Solomon's church in Jerusalem) and, if only indirectly , the cathedrals revered during the Romanesque and Gothic period were indeed copied, at least details of them (a tower or doorway) were imitated. And guide books, too, were printed; they included the famous pilgrim's guide: *Mirabilia Urbis Romae*.....

The Renaissance was acquainted with Cicero's oration against Verres, with stories about Nero in Hellas, with Pausanias. It knew that Vitruvius drew largely on Hellenic sources, how he described a parallel between Hellenic and Roman buildings and held that an architect must be familiar with history in order to be able to use historical forms correctly.

The heritage of the past was revealed to a great extent in the art of Europe of modern times, and was widely used. The question of authenticity had not yet occurred except for the problem of whether that heritage should be treated in a servile or free way and soon more and more models appeared until , as a result of the debate of the romanticist Ruskin and Viollet Ie Duc, the issue became an ethical problem.

The authenticity of form thus became an artistic-ethical problem, as it remains indeed to this day. To illustrate this type of ethics, let us once more take a look at the fine arts, at their side-shoots mainly: fake works of art. There is no inspiration present in them, they are created to fool the beholder, art historian, collector and dealer. Making fakes is fairly simple in the case of statues and paintings, though admittedly it does require a great deal of preparation, and even talent: buildings, however because they are immobile cannot be faked. Only perhaps the Greek peripteral temple has been copied exactly world-wide, but because these copies are the fruit of a stylistic trend, (neo- classicism), they cannot be considered fakes. Many consider the copying of historical buildings in the USA today fakes, like Paul Getty's Villa dei Papyri of Herculaneam erected in Malibu. However , it was not built to deceive people (it was not built unethically in secret), because its formal origin was clearly named. What happened was that several original historical buildings were dismantled world-wide and shipped to the USA. Finally, another example for the interpretation of the relationship of form and matter, is the case of a 6th century sanctuary in Japan according to religious laws, the church is entirely rebuilt every twenty years, changing its materials but keeping the original form, for they believe that divinities are unworthy of decaying matter, deserving new and beautiful materials.

Comparing this eastern mentality to Alois Riegl's *Alterswert,* the concept of antique matter representing western mentality the complex nature of authenticity becomes evident. And its simplicity, too because the problem concerns just one issue, that of form and its various manifestations Only after this has been answered can we proceed to complementary issues. The forms that need to be given consideration in connection with authenticity, therefore, are original, inspired, and reproduced forms.

* *the original form:* the unique, unrepeatable form, considered entirely authentic;

* *inspired form:* a variation that developed over the ages which was inspired by the original form. Traces of the inspired form are present in every style of the European memoria and because it is of its own age it may be considered authentic. Nowhere did inspired form provide so continuous a chain than in the history of the architecture of modern Europe. The reason why defining it is so important is because the development of the preservation of monuments stems from this type of form, by denying as it does the *raison d' etre* of formal variants. And, dialectically, inspired form soon attained the rank of the original.

* *reproduced form:* copied forms which can be either total

or partial. Total reproduction is the copy of the whole building, partial reproduction means copying certain architectural details. The reproduction will either use the material of the original or other materials. The original form may be reproduced exactly, but to a different scale, larger or smaller.

The reason why defining reproduced form is necessary is because it is not identical with reconstructed form which is a later variant. There are but very few examples of reproduced forms in architecture, except in monumental architecture, as we have seen. It is easier to find examples in the fine arts, like the early copies of Hellenic statues for instance and it is a well-known fact that European museums were at one time, full of the plaster models of classical statues. Because the intentions there were self evident and ethical, those reproduced forms are to be considered authentic, yet relative.

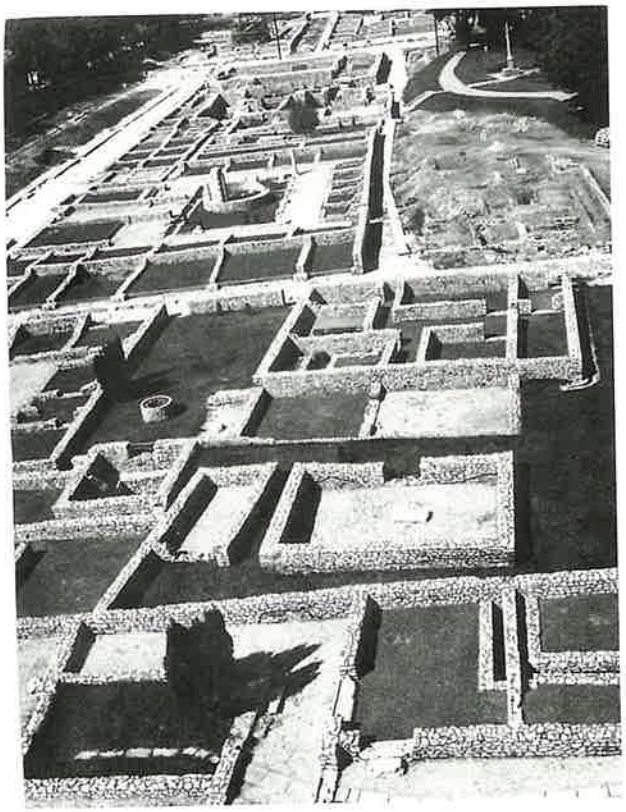
In the same way pre-produced, designed forms can be considered a sub-category, or even an independent type. Ancient Hellenic architecture created paradigms: small-scale models of buildings, preliminary images. Many such three dimensional models have come down to us from the Renaissance, too, and today's architecture and city planning makes use of this method. Such small-scale models of buildings and cities (Rimini, Klagenfurt, etc.) were an effective means of understanding the full-scale version. They, too are relatively authentic if they consist of copies of concrete, historical (and not imaginary) buildings. It must be said, however, that in the Renaissance full-scale details of buildings to be built were provisionally erected so as to put the ideas of their creator to the test and to see whether the community accepted them or not. Examples of this are Michelangelo's detail of a sill of the Palazzo Farnese, and Bernini's façade-detail of St Peter's Square.

Obviously, reproduced forms will never become original forms.

To define authenticity we must take into consideration the factors of time and space. The history of many buildings will attest the fact that to the original form the elements of new styles were added, or the original was connected to the new. In the St Eustache church in Paris the Gothic framework is filled with Renaissance elements, forming a hybrid building. More often one encounters the juxtaposition of forms from different ages, the result of changes made to the building. These special cases point to one of architecture's less studied areas: "Zwischenstilkunde," which could clarify many theoretical problems. The problem of the authenticity of these hybrid formations will be further discussed under *The authenticity of pragmatism* where it will be seen to occur *mutatis mutandis.* [6]

This phenomenon is fairly frequent on an urbanistic level, too. Towns and cities are living organisms and are prone to change. If this change happens, historically or normally the juxtaposition of many original forms will result in an authentic city image. If the proposition that inspired forms become original forms is accepted the historical image of European cities, with their many neo-Renaissance, neo-baroque, neo-gothic, neo-classicist, buildings, will no longer be considered sacrilege. And in towns where originals and their neo-variants stood side by side the situation became even more varied.

Fig. 1. The ruins of buildings excavated by archaeologists are newcomers in the modern area. Roman town 1-4th century Preserv. 1963-1967. Budapest-Aquincum Hungary.



City planners have set up schemes both for planned cities and for cities which can develop organically. The former is built rapidly, while the latter evolves over a large time span. In other words preconception versus spontaneity. Now the history of city planning talks about a third variant: a hybrid of the two. Because the greatest city development schemes bite pieces out of the living body by simply adding sections which more or less take in to consideration the properties of that body, that is ignoring them . It is public knowledge that in the case of Rome and Paris and of many open famous cities, it is as if scissors were used to cut pieces out of the city map, ignoring the original layout.

Today we regard the practice of destroying so many historical values as unethical because we have seen it happen to so many settlements of our age. We have realised, unfortunately *post festa,* that the structure of a city as a whose represents values. But it would be anachronistic to project today's conception on the past. Such a change of attitude characterises the age and we should beware of falling into the "time trap", accepting the situation that seemed so inauthentic earlier on. In time we take the changes brought about by history for granted.

The temporal and spatial aspects, also affect the evaluation of unique forms (in the most spectacular way, as inspired forms are sooner or later "legalised". Similarly they will modify the interpretation and evaluation of larger forms hushing up the dissonant outcries against the altered situation. However, the temporal and spatial aspects of forms give rise to many problems concerning authenticity.

The Axiom of Authenticity

The system of values of the preservation of monuments in relation to authenticity is studied in connection with a specific group of relics of the past, namely ruins or archaeological monuments. If we accept the proposition that the first inspirations of memoria were not full buildings but ruins, and that the preservation of monuments has its roots in the Renaissance, discussing ruins first, is an obvious possibility. Ruins are *par excellence* monuments and they are literally of the former building. At the same time the study of this special group of monuments, offers several general propositions.

The scale of values of monuments is composed of *existential aesthetical functional and historical-ideological factors.* These factors make up a hierarchic order from general to concrete.[3]

The mere existence of ruins is a strange matter, because they are living examples of the passing of time, so powerful, in fact, in the Romantic age they inspired the creation of artificial ruins. Ruined buildings remained an integral part of their surroundings, and mysterious tales and beliefs were attributed to them, often mistakenly and despite which they remained authentic elements of the *milieu.* The ruins of buildings excavated by archaeologists are another story, because they are newcomers in the area. In this artificial situation the relationship of the ruins with their surroundings is not authentic, or only "stratigraphically" if it was known that there must be something underground. The reason why the comparison of ruined buildings with ruins revealed by archaeologists is interesting is because certain countries treat each case pragmatically because the relationship of objects with their surroundings will change due to artificial intervention (excavation, etc.) or catastrophes. The result provided this hybrid state is maintained, is a kind of schizophrenia of the *genius loci,* the hitherto unknown symbiosis of present and past.

Naturally the problem only occurs in the relationship of the ruin with its surroundings. The material the construction methods and generally speaking, its material value will be authentic. Because so little has remained of the original material it becomes more valuable, which has an effect on all practical matters in connection with it.

Both "ruined" and "excavated" ruins have only partially kept their original forms. The presentation, nature, and *"aesthetics"* of ruins differ from the original full building. The logic of destruction (the building is destroyed and its materials carried away) and the natural process of decay have formed the accidental picture of ruins. Most often only the foundations, sections of floors, and walls and perhaps part of the ceiling and roof have come down to us. The pile of ruins itself is immobile, but there is a characteristic complementary phenomenon: the scattered remains of broken columns, pillars, vaults, etc., next to the *in situ* details become movables, and can be displayed in museums.

Ruins, then, do not offer an authentic image of their original intact state and form. But viewed as ruins, even artificial ruins they are indeed authentic, because they have an independent aesthetic. The major changes in form and state make renovation extremely difficult, especially when a building or city has been destroyed by a catastrophe of some kind; and once it is over, the need to reconstruct it occurs immediately as for instance after World War II all over the world.

By necessity, ruins are devoid of their original function. Not that the original function (house, palace, or castle, theatre, etc.) cannot be determined, because archaeologists or architectural historians are capable of determining functional modifications to the original during its lifetime even, and only extremely rarely does the function remain unclear. An existential change will also inadvertently bring about a modification of function in a cultural environment which attributes value to the object, despite its ruinous conditions. One may say, strangely enough, that the function of ruins is their very existence; they are monumental memories and mementoes, to which real or unreal values are attributed , A ruin may be restored to its old original form (a rare occurrence) making the function of a ruin ambiguously authentic: in its new form authentic, in its original form unauthentic.

It is in the case of ruins that the problem of function is the

most controversial. There exists an infinite number of living monuments with whose renovation tuning cultural needs (the need to preserve aesthetic, historical, etc. values) with living needs (the need to be able to use the monument) causes conflicts. The source of the conflict is the fact that architecture is a space-creating art: space once created for a certain purpose can be used for many other things. Let us quote a bizarre example: the refectory with Leonardo da Vinci's Last Supper in S. Maria delle Grazie of Milan as used as stables by French troops. Thus, the functional value has a general character while the spatial value is specific and has a concrete character.

It is the historical value that makes something a monument; all other factors mentioned so far gain sense provided one accepts this postulate. Getting acquainted with the past, as we have seen, is a process which, depending on the focus and intensity of attention, bcomes gradually clearer. Researchers gather more and more information about the past, knowing all along that they will never see with complete clarity. The same thing may be said about archaeological monuments; and in the same way as the modern history of architecture developed from vague outlines, so the definition of monuments began with uncertainty. The "grotesques", of Nero's underground Golden Palace lead to the conclusion that they were caves or *cryptoportici* of some sort. The monumental ruins of buildings found in Trier and Carnuntum were first defined as palaces, and only later was it discovered that they were thermal baths . The large peristylar villa at Gorsium was assumed to be an Early Christian basilica, and the buildings around it were thought to be villas. Later it turned out that Gorsium was, in fact, a city with large walls and gates. Beside the changes in defining function , dating is often only possible with an *ante quem-post quem* method, and with the help of supplementary findings and iconographical evidence. Such methods, however, are far from accurate.

Similarly, it is difficult to reconstruct, from a work of art the nature of the environment which gave it birth, although it is the details concerning the construction of a building that are capable of authentically revealing the precise nature and unique artistic message of that building. Evidently both the work and its fragments will contain these expressing them in their own way, but unable to speak. This is why there is a need for written history which is capable of reaching more or less authentic conclusions, There is nothing agnostic about this, but merely a warning to avoid the path which leads to an irreversible condition.

The relationship of monuments and history is influenced by exterior causes, like the notion of preference for stylistic periods. We notice in art history and archaeology the tendency for the period in which the work of art was created to influence the areas and direction of research, and often (latently) evaluation as well. We would like to sink deeper and deeper into the "well of the past", the treasures brought up from below will often seem more precious than the ones found on the surface. We are not talking about *Alois Riegl's Alterswart* of the monument, but the value attributed to the fact that it is older, as well as its temporal value, compared with its artistic value , will make researchers face a difficult decision concerning the preservation of monuments. And this is true whether we are talking about ruins or living monuments.

Besides, the relationship with the past will vary according to different regions and cultures and, as a result, the same historical era will be interpreted in many different ways. To give some explanation to these phenomena, we must now analyse the problem of identity.

The Preservation of Monuments and Identity

Let us begin, once more by taking a look at early modern times.

Italian Renaissance humanists intended to identify not only with the mentality of classical culture, but also with the environment in which that culture was conceived. The truth is that already during the Carolingian era the desire to restore classical heritage manifested itself, and it was not entirely unreasonable that the "semicircular arch" style of the Romanesque era, was considered Roman. The Renaissance conquered the European provinces of the Roman empire, and beyond.

The tight relationship between architecture and identity is further demonstrated by the fact that in what we have called the memoria of European historical styles the focus of the desire of identity changed permanently. After Rome, European man found an identity in the universal classical, then in the national, and later in the general human model expressed in the continuous change of scenery of the human drama. Several nations assumed these styles as their own and desired to identify with them, until modernism denied all links with the past. Which, of course, was not without antecedents, as testified in the work of Gottfried Semper. This revolutionary architect, in his *Der Stil,* sees the origin of the material arts in the use of materials and technologies, and his " aesthetic materialism" has nothing to do with history. At the same time, Semper, the architect gave his buildings a distinct neo-Renaissance touch. Such divergence between theory and practice is difficult to reconcile until we read Semper's statements; he considered the Renaissance to be a universal, abstract means of expression and,

in the chaos of eclecticism, it was the means he happened to choose,[9] Looking back to the early 18th century, there is a precedence in the English Freemasons' choice of Palladianism. Looking into the future, it can also be argued that such tendencies are discernible in the background of modernism.

The possibility of identification exists, then, in the relationship of man to his environment, and this applies to his constructed environment, too. It is primarily expressed in our love for our family home and town, and for the natural and architectural environment of our country, of which we are often only aware when we are far away from home and overwhelmed by the feeling that life can only be, complete back at home. This *instinctive (and perhaps atavistic) sense of identity* is most human and beautiful, a feeling that even uprooted cosmopolitans share to a certain extent.

The past is inscribed in our built environment both visibly and explorably, because the layers underground can be brought to life. But changes in history have left regions whose inhabitants are more or less inheritors of a very distant past, and who historically, ethnically (thus spontaneously) and naturally identify with their heritage. But, again, there are regions where the grandiose, spectacular heritage went to newcomers who developed their own culture, but who honoured and esteemed what they found. This *real, historical and topographical identity* resulted in the most attractive (and ethically spotless) manifestations of the preservation of monuments.

The ruthlessness of politics and war had a strong effect on this, suddenly creating new situations. The maps redrawn by peace treaties ignored cultural and ethnic situations and caused *problems of identity* on both sides. The benefactors of the new situation either began to wear borrowed plumes, or left the undesirable heritage to decay because it had become dangerous. If the losers, however, made any mention of the stolen values, the world would cry out against the benefactors Besides *the destruction of identity* and *the loss of identity,* there appeared, the phantom of a *ficititious identity,* a product of the imagination of non-existing continuities, and of its less potent form in which the "reconstruction" of the locations of novels compensated for the loss of heritage. Political powers have forced *ideological* identities on to nations not of a nation but expressions of dictatorship. The wounds of catastrophe having healed the activities reconstructing the *status quo* have always been questioned, despite the fact that all that has happened has been the restoration of a spontaneous, natural identity. Mention must therefore be made of *a restored identity.*

The process of migration and the intertwining of cultures world-wide reminds one of classical antiquity, the synthesis of Hellenism and the Roman encyclopaedia, when the west took up an eastern character, and vice versa. Now the acquaintance with one another has resulted, in our age, a tendency for regions where identity was latent over many years to develop that identity and present the world with the values of their culture. *Local identity,* then, was to become *universal.*

The question of identity is extremely complex, and humanity can hardly be proud of some of its manifestation. But the effort must be made to understand its complexity, because only research will show what dynamic forces keep it alive and last but not least, how it effects the preservation of monuments.

The Authenticity of Pragmatics

Another meaning of authenticity in the preservation of monuments pertains to practical matters. The problem of whether the processes followed during renovation and maintenance are authentic, and whether the result of the preservation of monuments is authentic has been considered ever since the birth of the preservation of monuments, and it is, indeed, one of its fundamental problems. Pragmatics have been emphasised in many international agreements, so it is hardly surprising that many symposia held on authenticity in the recent past discussed the practical aspects of authenticity, without drawing out an exact theoretical background.

A pragmatical approach, however, remains admirable, because culture is extremely vulnerable world-wide, from the richest to the poorest countries alike. The proverb *"primum vivere deinde philosophari"* is an ancient one, but it remains even more true today. Those aspects of human life which create a better future like education, the arts, human sciences, the protection of our natural and created environment, all depend on material means, and act as ballast. It is no sheer chance that whenever a country's budget gets into trouble, that money allocated to these areas gets cut back. Intentions are good enough, politics, however, are wicked.

What this has to do with the preservation of monuments is that the work of preservation often rests with non-professionals, or half-professionals. Preservation experts must strive to demonstrate the values of monuments to those in charge of monetary affairs and give the preservation of monuments the place it optimally deserves. For preservation will have accomplished its mission once it has succeeded in preserving artistic and historical values in a semantically clear manner i.e. in an obvious way, for the use of the community and society.

Again with the same method we shall take a look at

Fig 2.a

Fig 2.b

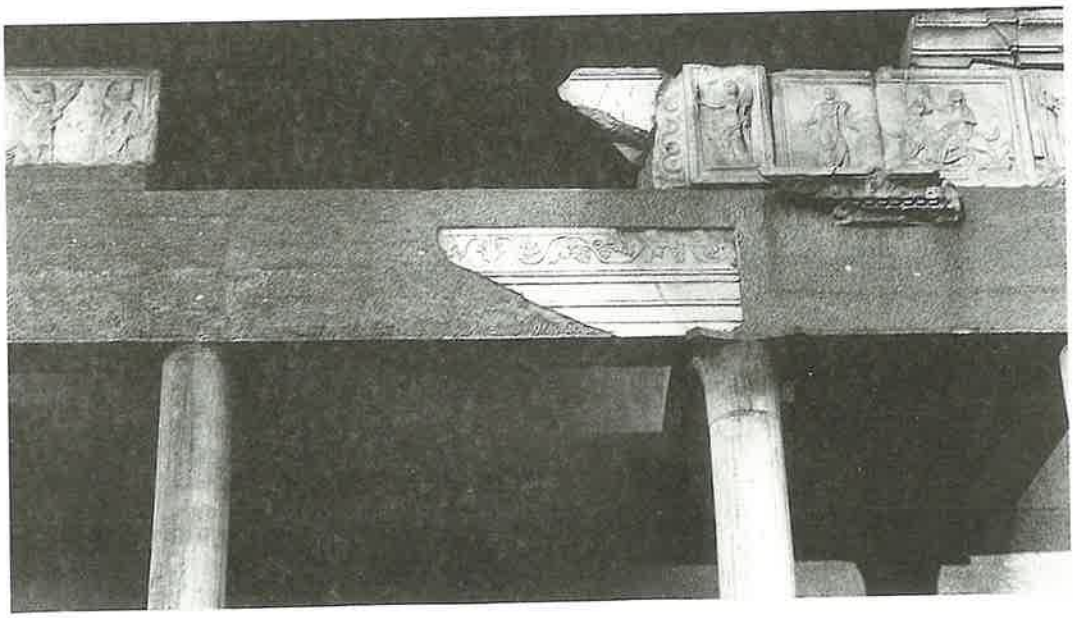


Fig. 2.c.

Fig 2. a, b and c Reinstalled form - with the reinstalment of architectural details, supplementary materials are often necessary.
Sanctuary of Isis 3rd century, Preserv. 1962.

ruins. We must repeat the statement that the practice of the archaeological preservation of monuments, despite the fact that it is a special category, offers many general observations.

Due to climatic conditions, the existence of ruins in many places is hardly threatened at all. In other places, however, due to changes of temperature and climatic tension, they are destined to decay without human intervention. In the Mediterranean, and many other places, all that would be necessary is a minimal amount of "order" for ruins to remain the unspoiled relics of the past for a long time to come.

Interestingly enough, ruins are often left intact for theoretical reasons. In ancient Athens the mess resulting from the destruction by Persian troops of the Acropolis took years to clear; the piles of ruins representing both the humiliation and triumph that followed. Only later was it decided to rebuild the Acropolis. It is as though today's preservation of monuments by the Greeks has inherited that "respectful" tradition; the extent to which it treats the ruins of classical buildings is public knowledge. The ruins of the Temple of Zeus at Olympia, probably the acme of the Greek Doric style still look exactly the same as when they were discovered, with fragments of columns scattered about. It was surely not left as it was because of the survival of its almost exact copy in Paestum. The tendency to keep ruined buildings as ruins re-emerged as a result of the destruction in World War II.

Very often ruins are exposed to humidity and aridity, heat and cold, and air pollution. For historical and scientific reasons, as well as to satisfy the needs of identity, archaeological sites in many regions are opened up even if experts are aware that the ruins will face harsher conditions when unearthed. If it is decided to preserve the ruin, the original material will need physical protection.

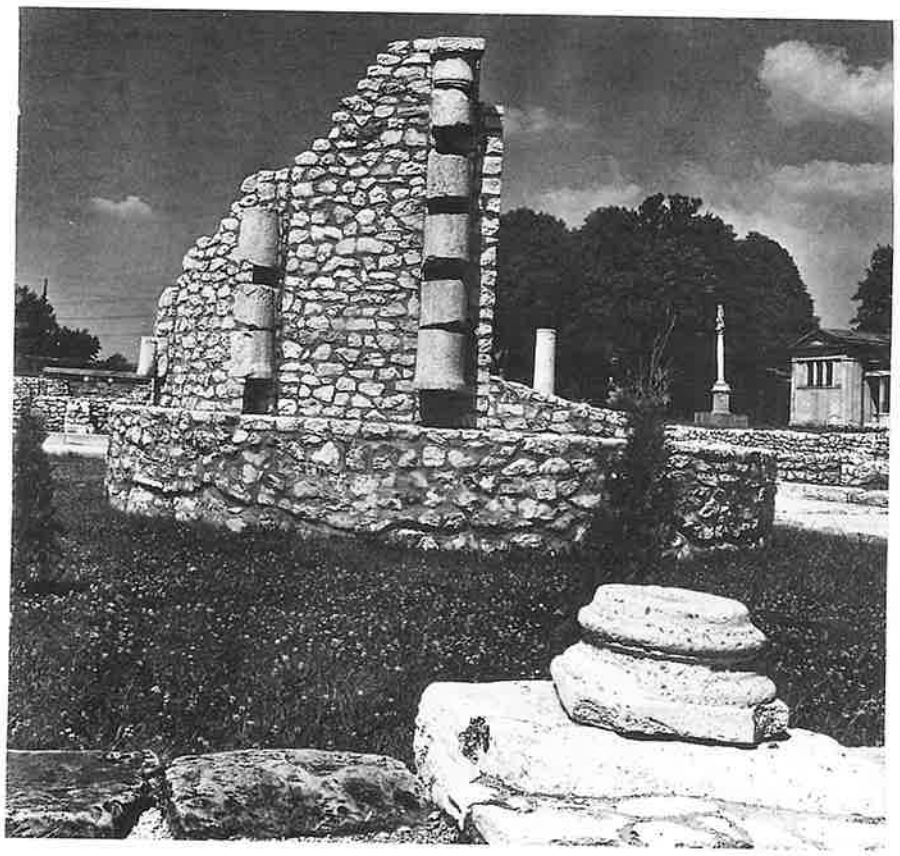


Fig. 3. Reinstalled form-with the reinstalment of architectural details, supplementary materials are often necessary. Budapest - Aquincum Hungary Macellum, 3rd century Preserve. 1965.

The golden rule is that everything must be done to preserve the original material. By collecting and building together the materials and scattered fragments a certain degree of protection may be achieved, and the renovated state of the object will remain authentic. But all other materials used for the preservation of the object reinforcement, repairs, etc. cannot be considered so, because of the extreme difference of their nature. Preservation however is the existential interest of the object, so that there is no other alternative than to call for alien materials. Practice has shown that many different kinds of materials can be used for preservation (natural, artificial, etc.), for various, often controversial reasons. This goes to show that the use of such materials provides no grounds for deciding whether the *processes and methods used* are authentic or not. The only general principle is the ethical requirement of differentiation and semantic unanimity.

The evaluation of the relationship of ruins and their environment is a similar matter. As opposed to a ruined building, excavated ruins are the sudden appearance of a long past world on the stage of the present. The protecting building acts as a spontaneous division line between the two worlds. Protective buildings are authentic elements of their environment within which the past is captured yet allowed free development. Often, anachronistically, protective buildings which are emphatically modern but whose plan does not take into consideration the former structure of the settlements are erected in large ruined areas. It is enough to surround the ruins left uncovered with a fence to signal the differences in age, which can then be reinforced by informational means.

The sight of a renovated monument or its formal presentation, offers the best possibilities of analysis, in order to demonstrate the processes the preservation of monuments uses. These fall into two groups. The first group contains processes which do not change the original form of the object (except for certain unavoidable technical interventions.) *Renovated, restored and transposed* forms belong to this category. The processes of the other group use various additions and modifications: *substitutive, complementary, reconstructed or hypothetical* forms belong to this group.

* *Renovated form:* the most simple variants of the renovated form is cleaning to revive the original qualities of the building in the case of sculptures or paintings, the removal of unnatural layers is understandable. This does not apply to patina, however the presence of which does not lessen authenticity. Renovators often face tasks which are impossible to tackle because of the chemical changes in the work of art (e.g. distortion in the original stonework). Buildings are often redecorated, and different coloured layers cover one another. There is a certain

historical message in the changes of colour, so in fact, all layers are authentic. Renovation in the classical sense, however, calls for the original colours, if conditions permit.

* *Reinstalled form:* the form reinstalled to its original position, or, more commonly known by experts as *anastylosis.* Despite the fact that etymologically all this meant was putting the scattered fractions of a column together again, the word is used in a more general sense, often incorrectly. A reinstalled column will be authentic even if it bears visible marks of its reinstalment. The assembling of scattered, broken elements has only documentary value, but it is misleading, for example, to place a capital on top of an incomplete number of column sections.

Often in the early stage in the history of the preservation of monuments, mosaics and frescoes would be removed from their original place and set up again in museums. This was happened with many architectonic details, like ledges, friezes, acroteria etc. - all of which were considered movables. Many examples from Pompeii illustrate this. In Herculaneum, however, efforts were made to preserve the original status quo. Due to the change of concepts, material transferred into museums was often carried back to where it came from if sufficient protection could be provided. Reinstalment in the case of mosaics raises no problems whatsoever because it is put back on the original floor. Such reinstalment of architectural elements is more problematic because they usually come from a ruined building and if they intend to replace the element in question to its original height, for instance to recreate the effect it once had, supplementary materials are necessary. "Prostheses" whose material and structure differ from that of the original are ethically acceptable, but aesthetically, and often didactically, they create an unnatural effect. Which was why efforts were made to overcome the problem by the partial reconstruction of lost structures. This is not, however, straight forward reinstalment; it is a mixed technique, of which mention will be made later on.

* *Transposed form:* the relocated original form. A procedure that requires great expertise and substantial financial and technical means. Only very rarely is this type made necessary. In Egypt, when the Aswan High Dam was being built the monuments of Lower Nubia had to be saved by relocating them. Conditions varied and besides free-standing monuments, experts faced the problem of relocating hemispeoses and speoses carved into rock. At first they tried to preserve them in their original position and thought they would protect them with embankments. Looking back, this method would not have affected authenticity, because the water-level of the Nile never rose as high as anticipated. In the second phase they decided on relocation. They only succeeded in doing this with a kiosk, transporting it by rail. Gazzola had wanted to move the greatest of them all, Abu Simbel in one piece, but the risk was too great. So the temple was sawn up, together with its rock mounting, and relocated on a hill further away from the canal.

This may be said that, after relocation, monuments remain authentic, despite intervention, the traces of which are not visible, hence insignificant. The relationship of the monument with their environment however does not remain so, even it these particular monuments remain an integral part of the Nubian landscape.

The relocation of vernacular buildings results in the formation of open-air museums. The original forms fit well in to the reconstructed environment, and so an acceptable unity is created, The anticipated break takes effect at the border of such museums, which can be improved by establishing division-line in the type of planting.

The most problematic processes in the preservation of monuments belong to the second group:

* *Substitutive form:* it fulfils a professional-ethical need in the interest of semantic unanimity in order to be able to differentiate original from other necessary components. The new material must be different form the original. These are two possibilities: substitutive form may fulfil the desired role "indifferently", or to some extent render palpable the original. A simple example: the missing stone pillar of a portico may be replaced by an iron prop, or by a plain concrete or artificial stone pillar, its form resembling the original.

The over-extensive use of substitutive forms in living monuments can suppress the original effect of the work, in such cases the process of preserving the monument may be considered authentic, but the intervening "information" of the present disturbs the message of the past, causing misunderstanding.

* *Complementary form:* the result of a process imitating the original formal language or style. The purpose is to restore the continuity of the original fragments. The method must be applied with care. The morphology of fragmented bases or shafts of columns and of ledges, frames, etc. is preserved by the remains, so filling missing parts is authentic. The problem is whether the missing parts should be filled by substitution or by using the original materials. Size and scale should be taken into

consideration: the smaller the missing part the more justified it is to make repairs using the original material. As to the limits, practice will give different answers. One thing is certain: complementary forms are aesthetically less conspicuous than substitutive ones which create ambiguity.

Fig. 4 a and b. Complementary Form - Restoring the continuity of original fragments. Nymphaeum. 2nd century. Preserv. 1970. Tac Gorsium Hungary.

Complementary forms include the protective addition to excavated remains of walls using the same material, the supporting wall to engaged columns or pilasters and details fitted under ledges, the last being usually interpreted as partial reconstruction.

* *Reconstructed form:* the rebuilt form, structurally and formally identical with the original. With a few exceptions, reconstructed forms are rebuilt from fragments of the original, using surviving foundations, wall stubs, covering elements and other details, according to a scientific evaluation which draws on new or original documentation, plans, and plausible analogies.

Reconstructed forms are the most controversial problem in the preservation of monuments. This is especially true of archaeological monuments because of the great time span. In order to preserve large archaeological sites, a typical building site is often constructed. In such a case contemporaneous architecture " steps into" the present, further complicating the already existing problem of the *genius loci* caused by the ruins in the first place. To justify such methods the term "1:1 model" has been introduced. Models are an extremely important means of information being three-dimensional re-creations of original buildings. They are both useful and didactic, which is why they are favoured by museums. But "real" reconstructions, erected in isolation are ambiguous and need explanation.

Even today the reconstruction of the Stoa of Athens remains controversial. It has been condemned for pandering to American taste, which is true in that Americans paid for the reconstruction and American archaeological institutes for the upkeep. The Stoa of Attalos was reconstructed on the original foundations and its facade was rebuilt from original fragments, the analogies with Pergamon having been thoroughly studied. Artificially the reborn Stoa offers the original architectural experience, the shade in which once citizens of Athens strolled, in which philosophers walked, contemplating and teaching. Also, reconstructions are capable of giving some idea of the little known price of beauty. Walking in the Stoa we begin to understand the incredible expense of Hellenic architecture. So admired for its simplicity and grace. True, we know this from original budgets, but only here do we actually sense it. The Stoa adds to our knowledge of Hellenic architecture, which was why the Greeks gave permission to rebuild it despite their normal practice of not allowing reconstructions.

Germany's attitude concerning the preservation and reconstruction of Roman architectural ruins was typical. Only very few Roman buildings or ruins survive in Germany, but due to the outstanding results of provincial ar-

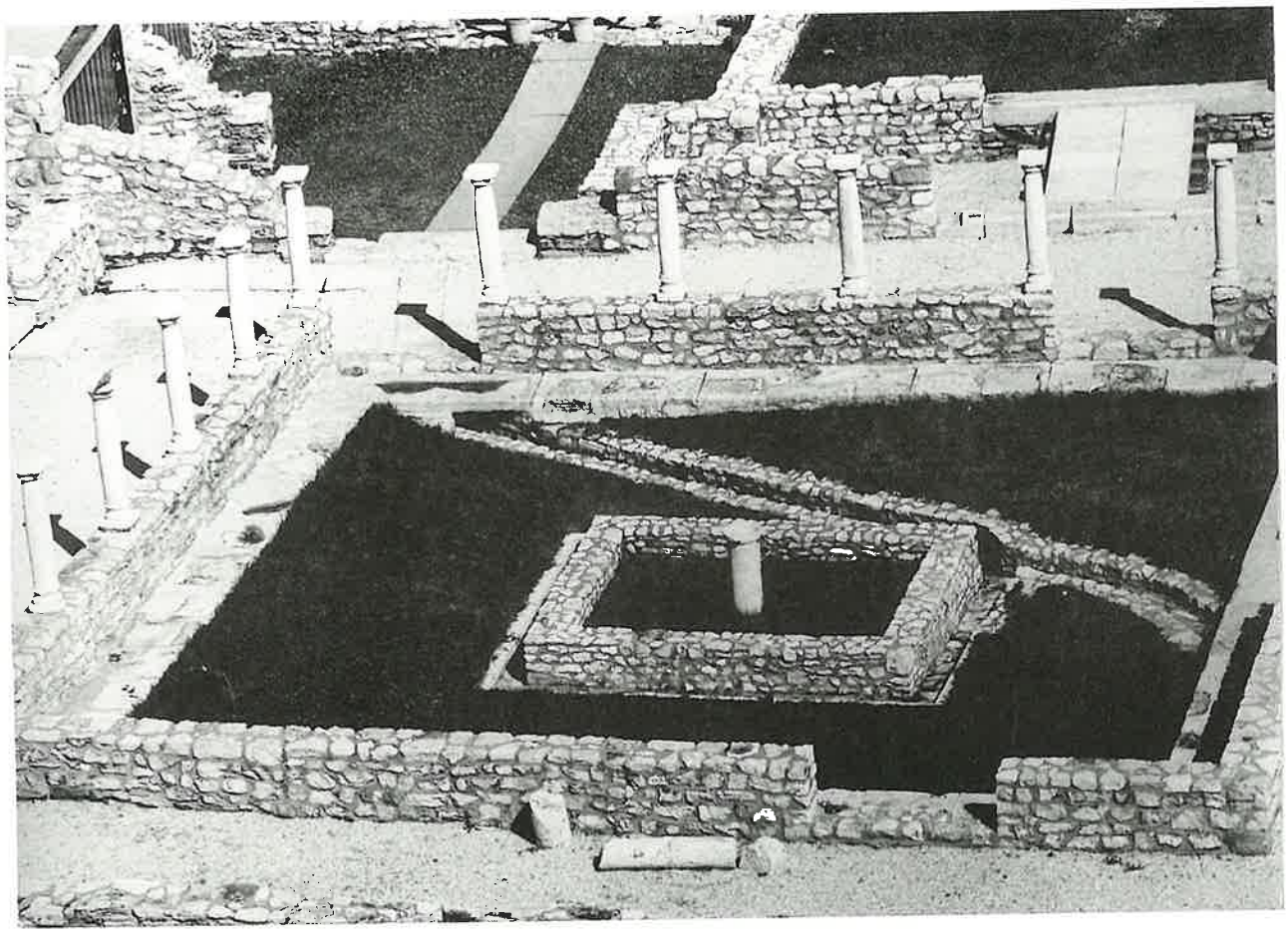


Fig. 5. Complementary Form. Restoring the continuity of original fragments. Completing a collonade according to an original column. Peristylium of Collegium Iuventutis 3rd century. Preserv 1967. Budapest Aqincum Hungary.

chaeology (without which the material culture of the Empire could not have been authentically recalled) the architecture revealed deserves special attention. The reconstruction of the castellum at Saalburg after World War II led the way in various provinces entire camps, ports of cities, temples, villas, etc., were reconstructed. Contributing to this tendency was the fact that the towns which were rich in monuments were afraid that the new principles, defined at the time would threaten the preservation of monuments. For this reason Germany at first did not accept the Venice Charter. It was at this time too that the difference between ruined buildings and excavated ruins was first made so as to explain the different procedures they each required[10] something which has been questioned since Germany signed the Charter.[11] Post festa: the reconstructions were accomplished and were to create new values.

When evaluating the reconstructions of monuments, the date of destruction is important. We must look, once more at World War II when buildings and whole districts were destroyed, but remained alive in documents, plans, drawings and, especially, in the minds of their inhabitants. Different nations evaluated destruction differently. So that where ethics prevailed empty sites were filled with modern buildings; but where the search for identity proved stronger, the old environment was reconstructed.

Reconstructed forms are in fact *hypothetical forms*. Only partially are they founded on authentic evidence. The scientifically sound statements derived from them, however, justify the results of the method. They inspire research because general conclusions may be drawn from them concerning certain types, and construction methods. On the other hand they create didactic values, explaining the past to professionals and non-professionals alike.

Buildings are erected for concrete purposes but, due to their genre, they are potentially *multifunctional*. Buildings can be dwellings, chateaux, palaces, churches, hospitals, theatres, etc., the interiors of which can be used for practically anything. One may rightfully say, then, that the function of buildings, in a broader sense, is (generally speaking) to provide an adequate framework for the various activities of human life.

The fate and history of monuments proves the above statement. Chateaux were converted into museums, hotels and

Fig. 6. Reconstructed Form. Roman amphitheatrum. 2nd century. Preserv. 1938. Budapest - Aqincum Hungary.

Fig. 7. Reconstructed form. Aquaeductus. 3rd century. Preserv. 1974. Budapest Aquincum.

hospitals; palaces into ministries; churches and synagogues into concert halls, cultural centres, libraries; large city dwellings into office buildings, etc. It is a well-known fact that a monument is capable of adjusting to its new function. Very often, however, only the exterior is left intact and the interior entirely changed. It is in these cases that the problem of authenticity occurs, and that a requirement is stipulated that the changes should follow the original layout of the building at least to some extent. But even the most fortunate solutions will create a hybrid situation, with an authentic exterior hiding an inauthentic interior. Which is why more important than morphological unity is the "co-ordination of values", i. e. making the new function of the building worthy of the monument. The opposite of this has been demonstrated in many countries with poor identities.

Because, however surprising it may seem, monuments have another function, which is that they are monuments. This is because the given culture has recognised their values and they have a mission; to make all people aware of the knowledge and beauty bestowed on them.

The exceptional state of monuments is more straightfoward in the case of archaeological ruins, because they are no longer capable of fulfilling their original function. Renovation and restoration of ruins of buildings and settlements attempt to give some idea of the original function by differentiating various types of spaces. All that reconstruction of the homogenous and inarticulate picture of a floor amidst ruins of buildings achieves is to give an idea of whether it was originally an interior or exterior space. More zealous reconstructors attempt to rebuild amphitheatres, baths, shrines, etc. in which the reproduction of original activities is made possible.

When judging the authenticity of such reconstructions one must take into consideration the fact that the function of archaeological ruins has changed existentially compared to the original state. Thus the above mentioned mission of monuments takes effect subliminally, independent of the functional value.

Which is why this group of monuments belongs essentially to the field of museology, and has to be treated according to the methods of that field. This does not only apply to movables and details, but to the ruins of the building as well the Bodendenkmal, exhibited in the Freilichtmuseum. Naturally this hypothetical viewpoint may be contested. Some people condemn it all together. Yet it seems plausible, especially when the method of museology concerning living monuments are considered.

The New Balance

Human life is defined by the needs of the present, future perspectives, and experience of the past. While an undefinable force is capable of creating a certain equilibrium among the effect of these factors, it seems as if culture will prevail. One thing is certain: this equilibrium has been upset in our age in intellectual spheres, and in our natural and man-made environment. A change of mentality was necessary to re-establish balance: the *renaissance of the evaluation of historical values.*

The preservation of monuments, too, is an historical category, hence the fact that it cannot escape the spirit of the age, even if it is the institutional preserver of values of material culture. In evaluating historicism there is little doubt that it is too late to counteract the negation of general architectural

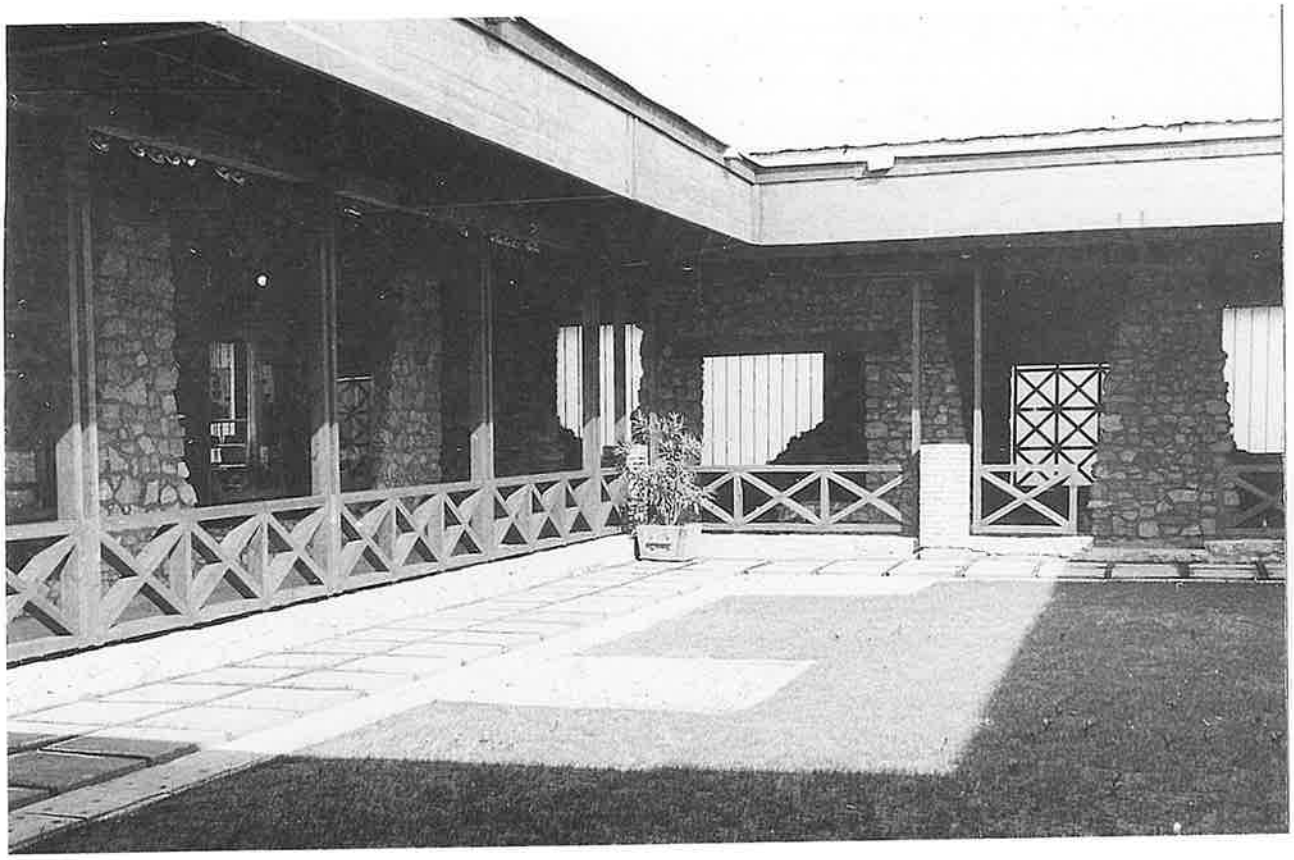


Fig. 8. The archaelogical group of monuments belongs essentially to the field of museology Protecting roof over a Roman villa with mosaics 2 - 3rd century. Preserve. 1980. Nemesvámos - Baláca Hungary.

tendencies. And most probably, if it had not been for World War II, the destroyer of villages, and for the autarchic, massive rush to build that followed it, the horizon of the preservation of monuments would not have broadened to the extent it has.

The *new balance,* however, has been established. There is hope for a consolidation of tendencies. And just as local cultures strive to develop authentic images in order to preserve or discover their identity so many international organisations, using intellectual and financial means, are working to reveal the universal values of humanity and to prove that even in our schizophrenic world man is capable of creating good and beautiful things.

And, because only their history and past has come down to us, dead monuments are unmistakable warning signals in this creation of harmony.

Notes

1. See note 8 for more details

2. *Gyula J. Hajnôczi:* Memorismus. in Mûvészettörténet - Mûemlékvedelem IV. Horler Miklós hetvenedik születésnapjára, Országos Mûemlékvédelmi Hivatal 1993. p. 506.
[...] "die Renaissance und der Barock im wesentlichen eine gemeinsame Periode, der erste Abschnitt des Memorismus gewesen seien, in der die Eventualität des soeben Entdeckten, die immer exaktere Erkennung der Vergantgenheit, gefärbt durch die Verschiedenheit der Reaktionen de Künstler, die Veränderungen in grossen Masse beeinflusste. Ihre Fortsetzungen, der Klassizismus, die Romantik und der Historismus waren ja auch Folgen des stämdigen Intensiever-Klarer- und Verbreiteterwerdens der Zeitalter-Erinnerung".

3. *Dr. Hajnóczi Gyula:* Építészet és imitácio. Építés- és Közlekedéstudományi Közlemények 1962/1. pp. 117 127 (in Hung.)
"The imitative phenomena of architecture can originate in the exterior world (exterior imitation), and within architecture

itself, too (interior imitation). Characteristic of exterior imitation, besides those mentioned, are e. g. antropomorphism, and the usage of symbolic signs, too. Tradition, as well as eclecticism, is an interior imitative symptom."

4. *Gy. Hajnóczi:* Lokaler und universaler Wert der Kunstdenkmäler. Periodica Poltechnica. Architecture. Vol. 18 No 1-2. Budapest 1974. pp 53-62.
"In lack of recognising the difference between the *local* value of monuments - valid in a rather narrow range - and their *universal* value - valid for mankind - and because of the differential *internal* and *external* appreciation of given monuments at home and in the world respectively, no uniform principles have been developed to direct practice. This contradiction may, however, soon be resolved by actually prevailing tendencies of cultural interaction." (p. 61)

5. From *H. Gy.* 's speech at the scientific meeting of the Hungarian National Committee of ICOMOS on 25 October 1994.
"The Greek root *autos* in the word *autenticus* refers to something that is the matter itself, or is identical with itself. The English language uses *genuine,* too, which means original (from the Latin root: belonging to the race), as well as sincere. The French language uses *crédibilite,* German uses *Glaubwürdigkeit,* Italian *degno di fede,* and all this makes it likely that the matter or phenomenon plausibly resembles the original. The word authentic then is, ambivalent; on the one hand it means real/original, and on the other, it means believable."

6. Formal hybridity is a usual companion to normal, everyday life. Installations (movables and everything else a flat contains: paintings, various artefacts, textiles, etc.) usually differ from the "style" of the building, and from one another, too. Purism removed the baroque altarpieces from gothic churches, replacing neo-gothic ones, instead, in order to achieve a uniformity of styles. This way the original form was filled with inspired forms which Riegl and Dvorak highly condemned. Rationality inspired modernism to add furniture, and it strove to avoid adding unsuitable movables. Yet modern interiors are known to be "dressed" with valuable pieces of antique furniture.
The relationship between installations and their environment, and the hybridity of that environment is not permanent, it changes easily. The interior of a flat reflects the financial means. level of education, taste, etc., of a small circle, maybe a family. This is interesting from a sociological point of view, therefore authentic. Individual objects may be originals, reproductions or inspired forms. They may be evaluated independently, but subjectivity, and fashion will always create different value systems. Some people prefer Gaugin reproductions to the works of a beginner contemporary artist, yet hate period furniture, though they fall in the same category.....

7. *Hanno-Walter Kruft :* Geschichte der Architekturtheorie, München, 1985. Camillo Sitte on Wiener Ringstrasse;
"Wenn man die gotsche Votivkirche. die im edelsten Renaissance-Styl erbaute Universität, und die verschiedensten Geschmackrichtungen huldigenden Miethäuser zuglech überschaut, ist es nichts anders, als ob man eine Fuge von S. Bach, ein grosses Final aus einer Mozart'schen Oper, und ein Couplet von Offenbach uz gleicher Zeit anhören sollte, Unertäglich! Geradezu unerträglich ! (p.366)

8. Gy Hajnóczi: Architectural meaning. Periodica Polytechnica Architecture Vol. 30. No. 1-4 Budapest, 1986, pp. 71- 79'
"Architectural meaning arises from a definite relation between different elements of meaning, different intensities of activity, as general ones are easier to understand, than more concrete ones, but for recognising reality, these latter are more valuable. Architectural elements of meaning - from the general to the concrete - are: expression and meaning of the building as a building - existential (1); formal features of the work - aesthetic (2); function of the work - functional (3); circumstances of origin - historical-ideological (4)."
A study published in Hungarian in 1960 interpreted the relationship between architectural form and contents from a semantic aspect. Based on "simple" semantics it tried to define the fundamental "properties" of buildings and the ways "those are expressed". Now, properties are indeed values, so the supposed elements of meaning served as a basis for drawing out categories of value.

9. H-W Kruft: op. cit. p. 360.

10. Gunter Ulbert - Gerhard Weber: Konservierte Geschichte? Kempten Stuttgart 1985.
"Die auf antike Baudenkmäler anwendbaren Passagen der Charta von Venedig beziehen sich in erster Linie auf mediterranenen Raum. Die schier unübersehbare Vielzahl der archeologischen Stätten mit sichtbaren antiken Bauresten und das für ihre Erhaltung günstigere mildere Klima unterscheiden sich deutlich von den Verhältnissen im europäischen Norden" (p. 313)

11. Sinn und Unsinn archeologischer Restaurierungen und Rekonstruktionen. Kolloquium im Rahmen der Jahrestagung. Traunstein, 1990

L'Authenticité Architecturale dans la remise en état de la grande tour de l'hôtel de ville de Bruxelles

Hubert Fernand Joway

La remise en état de la grande tour de l'hôtel de ville de Bruxelles est l'occasion d'appliquer, avec discernement, la notion d'authenticité, prônée par la charte de Venise 1964.

Cette authenticité est perçue ici comme étant la conformité avec l'original, plus spécialement sous l'angle architectural.

Cet édifice gothique fleuri du milieu 15ème siècle souffre surtout de l'altération inquiétante du calcaire gréseux lédien d'origine, des autres matériaux de remplacement et de la rouille des organes de liaison.

L'authenticité fut concernée:

-par le choix des matériaux de remplacement : pour la pierre, le calcaire gréseux Vaurion-Massangis roche jaune, de l'étage portlandien, en provenance de l'Yonne (France); pour le fer, soit l'inox 316, soit le titane lorsque des questions de dilatation se posent d'une manière particulière. Dans l'intervention, les plages subsistantes de grès lédien furent respectées; les pièces de fer bien protégées par une épaisseur suffisante de pierre furent laissées en place.

-par des techniques anciennes : taille ancienne pour les pierres, les mortiers bâtards, l'appareillage des pierres pour améliorer et/ou reconstituer la stéréotomie, le renforcement du rôle des tirants et des barlotières, les dorures ...

-par des moyens actuels éprouvés : comme cet édifice très élancé est formé par la superposition de trois calottes nervurées portées par piliers et par une flèche à huit côtes obliques, sa mécanique constructive fut spécialement étudiée - et scellement des tirants et des barlotières exécuté au mortier hydraulique avec agents compensant le retrait, le scellement croisé et par barres droites sans assemblages pour les tirants et barlotières.

-par l'exigence d'une qualité d'exécution dans chaque détail, exigence qui nécessite une "surveillance" constante et sans faille.

1. La Grand-Place de Bruxelles n'est plus à présenter, et l'hôtel de ville lui donne signification et personnalité. Beaucoup de ses édifices ont été reconstruits au début 18ème siècle, après le bombardement en 1695 par le maréchal de Villeroi, et reconstruits suivant les caractéristiques classiques de l'époque. La "maison du Roi", en face de l'hôtel de ville, est un néo du 19ème siècle en petit-granit.

2. Le projet-cadre de remise en état de la tour, élaboré en 1990, s'est efforcé d'assurer l'authenticité architecturale et historique de l'intervention, dans l'esprit de la charte de Venise (mai 1964). Au cours des travaux, des situations ont amené à approfondir ce concept d'authencité, et, pour reprendre un concept de base, débattu encore cette année en certains comités de l'ICOMOS, "il n'y a guère de théorie générale, il n'y a que des cas particuliers".

Ces situations concrètes rappelleront peut-être la distinction qui s'est déjà marquée à Venise, lors du 2ème congrès international des architectes et spécialistes de la restauration des monuments, au moment de l'approbation de la charte fondamentale : distinction entre les archéologues et historiens de l'art, qui se groupèrent dans l'ICOMOS et profitèrent par la suite de la dynamique de l'UNESCO, et des architectes qui voulaient expliciter plus l'aspect architectural. Cette dernière tendance, présentée par l'architecte belge Degand, n'eut pas les moyens pour soutenir sa cause, avec le groupement ICARMO.

Que chacun se rassure, l'orthodoxie du projet-cadre de remise en état de la tour de l'hôtel de ville de Bruxelles et sa réalisation est assurée tant d'un point de vue archéologique que technique et architecturale, par une équipe pluridisciplinaire et par des commissions officielles des Monuments, présentes à toutes les phases des études, des autorisations et de la réalisation.

3. Le bâtiment de l'hôtel de ville comprend deux ailes à deux étages, couverts par une toiture en batière ; la tour, très élancée, fait liaison entre les deux ailes par une base à deux niveaux sur plan carré, et elle est constituée par trois

galeries octogonales superposées d'une flèche ajourée de huit côtes. La statue-girouette du St-Michel terrassant le démon culmine à une centaine de mètres au-dessus de la Grand-Place.

L'aile gauche date de 1402, celle de droite de 1450 et la tour fut bâtie de 1448 à 1463, le tout en style gothique fleuri, proche de la première Renaissance. Les niveaux des trois galeries sont marqués par des parapets en cantilever, contournant les culées des pinacles.

Ces tours étaient le symbole de la puissance et de la fierté des villes.

4. La flèche a été construite en calcaire gréseux lédien, du tertiaire éocène de Baleghem dans les Flandres. A peine une cinquantaine d'années après, des réparations sont déjà nécessaires et elles se succéderont régulièrement, surtout pour les parements et les parties décoratives : pinacles et culées, balustrades, crochets et festons. Diverses variétés de calcaires ont été utilisées : de Gobertange, bruxellien du tertiaire éocène, petit-granit du carbonifèrien, Euville du secondaire, et, actuellement, la Massangis roche jaune, du secondaire portlandien, en provenance de l'Yonne en France.

L'incendie qui suivit le bombardement en 1695 par le maréchal de Villeroi, fit fondre les plombs de couverture et des scellements. Les interventions du 19ème siècle multiplient les pierres en délit et les moellons repiqués sans liaison suffisante ; de nombreuses pièces en fer furent introduites, sans couverture de pierre suffisante : tenons, crampons, cerces ... et les pièces plus anciennes, comme les barlotières et les étoiles de tirants à la retombée des calottes nervurées, sont souvent rouillées sérieusement dans leurs assemblages et à leur pénétration dans la pierre.

Dans les années 1980, à nouveau des chutes de pierres nécessitèrent une intervention, et les Autorités Communales la voulurent plus fondamentale que les précédentes : non plus seulement des ravaudages localisés mais vérification générale de la tour, élimination des pierres douteuses ou mal assemblées et des pièces de fer vulnérables.

5. Lorsque les échafaudages le permirent, des investigations plus détaillées montrèrent l'altération fréquente des diverses pierres rapportées : le calcaire gréseux lédien, qui affleure encore certaines plages, est souvent encore en condition acceptable ; les armatures minent les parements et sont la cause la plus fréquente des désordres.

Les diverses vérifications par calculs et les diverses instrumentations ont conclu à une bonne stabilité générale de la tour et des contraintes relativement peu élevées, une quarantaine de kg/cm2, et très localisées, même sous sollicitations exceptionnelles des vents tous les 500 ans (environ 210 kg/m2). Les vérifications ont confirmé des insuffisances locales : instabilité des arcs-boutants et de leurs culées ; étoile de tirants nécessaire à la base de la calotte nervures sur la première galerie; cerces et barlotières de la flèche minées par la rouille et qui se contrarient mutuellement lors de dilatations thermiques. Des disjonctions verticales, heureusement mortes actuellement, seraient imputable à des reprises de parements effectuées au 19me siècle, avec pourtant des disjonctions intérieures signalées par endoscopie mais non confirmée par un carottage.

Lors des travaux, un véritable corset en fer carré de 6 cm de côté, est apparu renforcer la tour au niveau des retombées des calottes nervurées des trois galeries; ces barres se localisent parfois dans les seuils des remplages. Leurs assemblages en fourche, assez encombrants, sont parfois trop proches des parements, bien que les barres soient dans un état étonnant de conservation.

6. Comment mener les interventions indispensables pour rester conforme aux principes de la charte de Venise, plus spécialement à l'authenticité?

Pour être authentique, la réalité, la vérité ou l'origine d'une intervention ne peut être contestée; un monument historique se doit si possible d'intégrer tous les dépôts significatifs des interventions précédentes. Les techniques traditionnelles auront la préférence; à leur défaut, les moyens actuels éprouvés seront franchement employés.

L'authenticité ne peut être "réalisée" vraiment que par "l'artisan" à tous les niveaux, qui aime son métier et dont la préoccupation première est le "bel ouvrage" et pas seulement la rentabilité. Ici pourrait se poser le problème urgent de la formation de la main-d'oeuvre artisanale, du choix des entreprises et des responsables du projet et de sa réalisation.

L'authenticité doit d'abord être dans la tête et le coeur de l'auteur de projet, et pouvoir, ensuite, être traduite dans la réalité concrète, en éliminant le plus possible de témoins, ici, de la rentabilité, pure et sèche, de l'entreprise. Il faut plus aussi que de simples techniciens : l'ordinateur, la puissance nième, ne peut être doué de la sensibilité et de la vue globale indispensables (si on ne le lui a pas au moins suggéré!). Plus que de simples intervenants spécialisés, tous doivent être fiers de la tâche à accomplir, et il faut des années pour s'y faire!

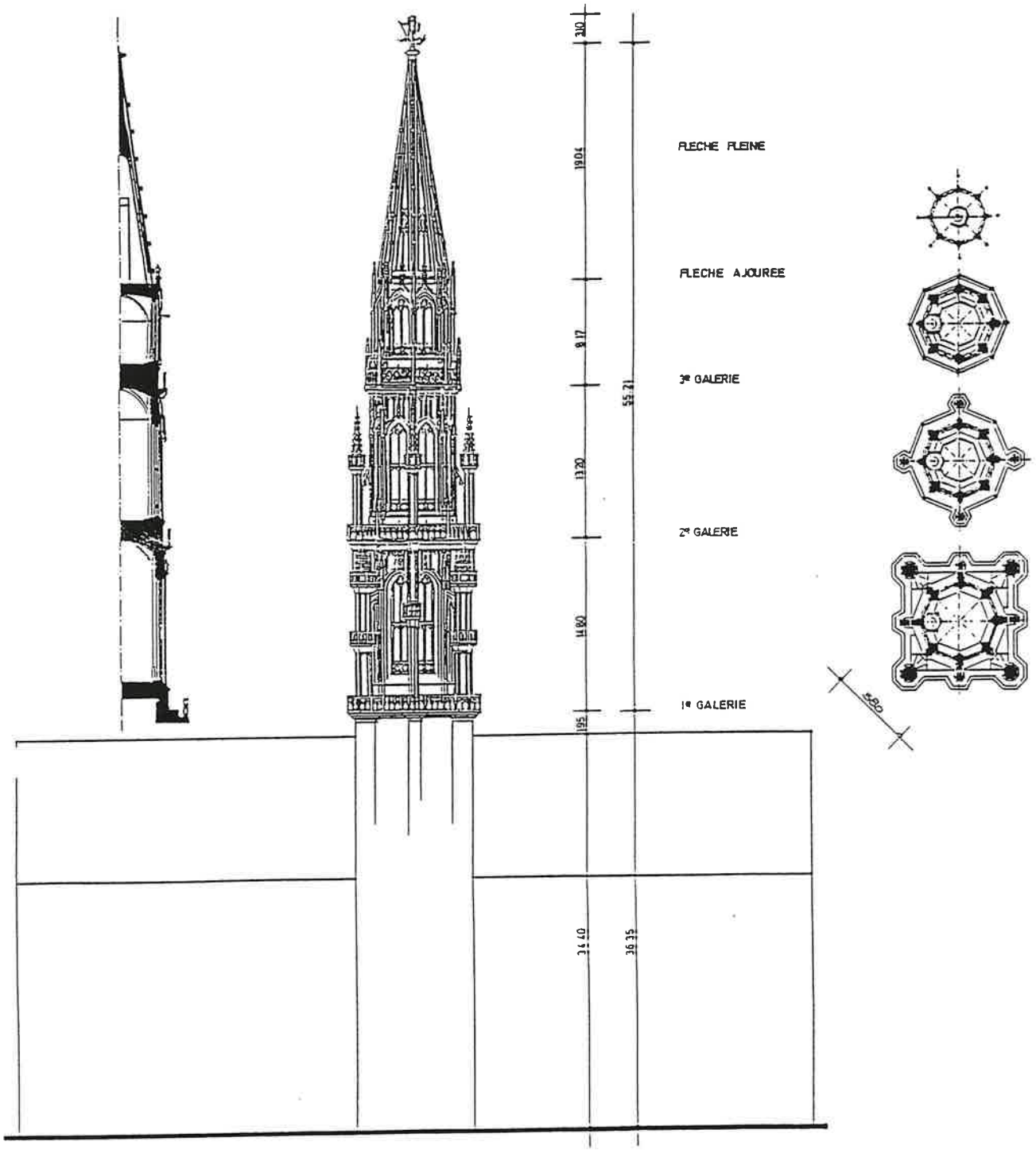
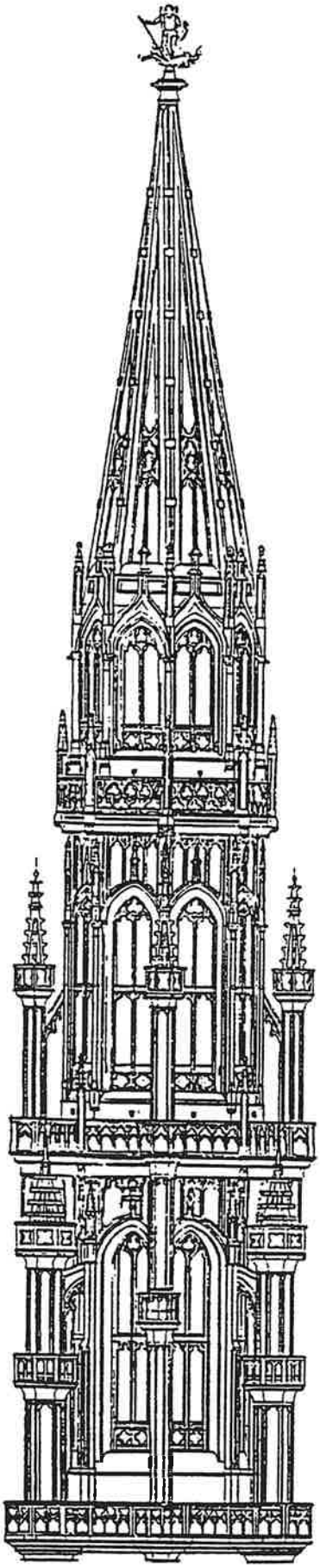


Fig. 1. Geometrie de la tour - disposition générale de la tour de l'Hotel de ville de Bruxelles.



7. Dès le départ du projet-cadre, la démolition systématique de la flèche ajourée, pourtant mal en point, fut refusée par soucis d'authenticité, pour ne pas refaire une copie, fut-elle fidèle. Cette copie aurait été constructivement plus saine et plus facile à réaliser que l'intervention, pierre par pierre et ponctuelle, laissant en place les masses d'origine.

8. Le respect des techniques traditionnelles

(i) Le soucis du matériau ancien : le calcaire gréseux de Balegem; ses gisements sont épuisés ou ne sont plus exploitables. Les insertions en Massangis roche jaune s'inscrivent dans un appareillage établi à partir des affleurements des pierres de Balegem ; la stéréotomie est minuteusement relevée et cela a d'autant plus d'épaisseur ; le harpage est nettement plus accusé que celui utilisé au 19ème siècle pour la pierre de Gobertange.

(ii) Une taille manuelle appropriée rend plus sensible les surfaces que l'ébauche mécanique : appropriée, parce que les deux cm prévus au départ pour être enlevés à la main ont été réduits d'une manière acceptable à ce qui est indispensable pour neutraliser la découpe à la disqueuse.

(iii) Le mortier de masse est un mortier bâtard, avec la teneur en ciment ajustée pour la résistance mécanique ; surtout le mortier de jointoiement est riche en chaux grasse, et contient des oxydes de zinc et des compensateurs de retrait, pour assurer l'adhérence à la pierre, l'absence de fissures et même l'autocicatrisation éventuelle.

(iv) Les dimensions principales ont été conservées multiples du pied brabançon de 27, 6 cm.

(v) La solidarisation des assises de pinacles est obtenue de préférence, pour des raisons de dilatation, par des tenons individuels et non par des barres continues, comme pratiqué au 19ème siècle.

(vi) Dans la flèche, la solidarisation des assises de pinacles est réalisée par le rôle renforcé des barlotières : leur continuité est assurée dans les côtes ; leur section est renforcée afin de pouvoir résister aussi bien à des compressions qu'à des tractions lors des sollicitations exceptionnelles ; les cerces extérieures, établies au début du 19ème, sont supprimées pouvant sursolliciter les barlotières par différences de dilatation thermique.

Fig. 2. Restauration de la tour principale de l'hôtel de ville de Bruxelles - tour de l'hôtel de ville de Bruxelles, édifice du milieu 15eme siècle.

(vii) Les culs-de-lampe trop érodés sont remplacés par d'autres, réalisés à l'identique ; les détails restitués s'inscrivent dans les lignes subsistantes. Les nouveaux culs-de-lampe, ainsi que les nouveaux crochets sont datés et marqués par le signe lapidaire du tailleur de pierre.

(viii) Les pièces en fer bien protégées sont laissées en place : étoile de tirants des 2ème et 3ème galeries.

(ix) L'iconographie montre que certains détails décoratifs : crochets, fleurons, même pinacles entiers, étaient dorés à la feuille et des fonds étaient peints de couleurs vives. En plus de protéger la pierre, ces dorures rehaussaient le symbole de la tour, à un moment où Bruxelles et Louvain s'efforçaient d'être choisies comme capitale. Des dorures à la feuille seront à nouveau appliquées sur les crochets des côtes et sur les fleurons des arcades supérieures.

(x) Le nettoiement s'est efforcé de respecter la pierre, son épiderme et ses reliefs : nettoiement à l'eau pure, avec au besoin projection de particules fines d'olivine pour les parties incrustées plus tenaces.

(xi) Les joints exposés aux intempéries sont exécutés au plomb fondu ; les autres joints sont entièrement remplis au mortier hydraulique avec joints spécialement terminés, même pour des joints de moins de trois mm d'épaisseur.

9. Les moyens actuels éprouvés

(i) L'inox 316 remplace les fers qui ont à craindre la rouille ; l'inox a cependant un coefficient de dilatation linéaire 16, 7 x 10 - 6, quatre fois supérieur à celui de la pierre. Lorsque les dilatations relatives peuvent devenir préjudiciables : étoile de tirants de la lère galerie, barlotières de la 3ème galerie ou entre les côtes ..., l'inox est remplacé par le titane, de coefficient 8, 7 x 10 - 6, double de celui de la pierre ; l'invar, de coefficient 1 x 10 - 7, aurait pu être choisi, mais il doit être protégé.

(ii) La solidarisation avec la pierre des nouveaux tirants ou des barlotières entre les côtes est réalisée non plus par assemblage en fourche avec clef ou par scellement époxydique, mais par scellement au mortier hydraulique, enrichi d'oxydes de zinc et d'agents compensateurs de retrait; des essais en laboratoire en ont montré une résistance en traction ou en compression très largement suffisante, les tiges ayant été crantées. Ce mode de solidarisation a été choisi parce qu'aussi mieux adapté à la main-d'oeuvre disponible au chantier.

(iii) Des pierres en porte-à-faux : culs-de-lampe cordons en saillie, ..., dont la totalité n'a pu être dégagée, ont été replacées avec tiges inox filetées scellées à l'arrière, pour compenser le manque de profondeur de la queue.

(iv) Les arcs-boutants et les culées sont stabilisées latéralement contre le vent, en les solidarisant avec le corps de la tour à l'aide de deux plats en inox, disposés sous la pierre de couverture des arcs-boutants.

(v) Les mortiers hydrauliques améliorés ont souvent été préférés pour les scellements aux résines époxy pour éviter notamment le retrait de ces dernières et leur évolution dans le temps. Les traitement par agents hydrofuges ou durcisseurs ont été très limités, voire supprimés, à cause de leur efficacité limitée dans le temps ou de leur pénétration insuffisante : mieux vaut dès le départ une pierre saine et la laisser vivre!

10. Faut-il évoquer la réversibilité prônée par la charte de Venise? Il est certain que l'on pourrait remplacer les nouvelles barlotières en titane ou les nouveaux tirants : ce sont des barres droites, dont les scellements pourraient être carottés.

11. Ce chantier a commencé en juin 1992, et sa fin est escomptée en mai 1997. La rédaction de ces notes se situe au début des travaux dans la flèche, peu au-delà des 2/3 de l'ensemble des travaux.

12. Ainsi, en suivant au plus près les conditions du chantier, les diverses constatations sur le site, les expérimentations, les simplifications de mise en oeuvre parfois imposées, ... les prévisions du projet-cadre ont été adaptées en respectant le mieux possible l'authenticité, vraie et concrète, de ce monument historique.

La vérité constructive et architecturale a été le principal fil conducteur de cette remise en état de la tour de l'hôtel de ville de Bruxelles, fil conducteur identifié et approuvé par l'équipe pluridisciplinaire, au travers des discussions au moins hebdomadaires, au travers des investigations et de multiples propositions de matériaux de chevronnés en ce genre d'intervention, fiers aussi d'oeuvrer au symbole d'une capitale multiséculaire!

Building Preservation Standards - can they be made to be independent of interpretive and / or aesthetic criteria?

Kate Burns Ottavino

Language plays a large role in the formulation of standards. Since historic preservation is a realm of endeavor in which many disciplines participate, it is important that the language we use in our standards accurately describes the intended application of each standard. In the field of historic preservation the concepts of preservation, conservation, and restoration are often intertwined, leading to confusion on the subject of interpretation. Since the purpose of standards is to establish a model which can serve as a measure for others, it is necessary that the subject of interpretation be considered thoroughly in developing standards for the application of building treatments.

Much of the language used in discussing preservation is borrowed from museum conservation. In this field the subject of interpretation is distinctly independent from the subject of conservation. In Philip Ward's book *"The Nature of Conservation"* he describes a separation between the act of interpretation, which is abstract, and conservation, which is physical:

"the interpretive or intellectual aspects of the object is the responsibility of the curator; the conservator is responsible for the physical aspects of the objects and the designer, researcher, or educator for the activities in which they are used."[1]

On the other hand, the National Park Service (NPS) blends these acts as part of its criteria for classifying preservation treatments. The NPS, during the October 1993 ASTM International Symposium on Standards for Preservation and Rehabilitation, suggested that preservation and restoration treatments each affects our interpretation of the object and blends the roles of curator and conservator.

On the other hand, and in keeping with the approach of the museum world, The American Institute of Conservation (AIC) does not describe any treatment as interpretive in nature.

"The term Conservation shall mean examination (action taken to determine the nature or properties of materials and the causes of their deterioration and alteration), Restoration (action taken to correct deterioration and alteration), and Preservation (action taken to prevent, stop or retard deterioration.)"[2]

The NPS presents the act of preservation as one entailing interpretation of the structure; however, not necessarily to as great a degree of subjectivity as the act of restoration. The AIC on the other hand sees preservation as preventive, meant solely to stop or retard deterioration, without a layering - on of interpretation. The AIC's position may stem from the disciplines within the museum world.

Based on NPS'S criteria for building treatment, our selection of a treatment may be accorded an interpretive intent and, therefore, a value judgment may be perceived to have taken place. If we wish preservation treatments to be accorded a solely pathological origin, subject only to technical standards and independent of interpretive innuendo, standards will have to be created which are independent of interpretive or aesthetic criteria.

To illustrate how integrally interpretive and aesthetic

considerations have infiltrated the realm of criteria for preservation treatment, the following is an excerpt from Dr. Lewin's introduction to Drs. Amorosso and Fassina's *Stone Decay and Conservation:*

"The phenomenon of monument decay and stone deterioration embrace those factors which operate to alter the appearance, strength, coherence, dimension, or chemical behavior of the material, either as individual elements, or as parts of structures, These factors include:

(1) Chemical attack, i. e., etchings, erosion, and dissolution, of alkaline stones by acidic substances, both natural (atmospheric C02, volcanic gases, rain water) and man-made (combustion products, industrial emissions).

(2) Mechanical disruption caused by expansive forces generated in pores, channels, and cracks by the freezing of imbibed water, by the growth of crystals, or by the corrosion of embedded metals (e. g., iron) or minerals (e. g. pyrites)

(3) Disfigurement, due to migration into stone of colored matter from adjacent materials (e. g., rust and cooper staining), or alteration of the original color or texture by selective leaching from one stone of one of its components. or by the etching and roughening of the polished surface.

(4) Abrasion, attrition. and stress-cracking due to wind-driven particulates, seismic shocks, vibrations induced by vehicular traffic, accidents, human contact, etc.

(5) Disfigurement as well as chemical and mechanical disruption resulting from the biological activities of micro-organisms, fungi, algae, mosses, and higher organisms including, inter alia, pigeons).

(6) Exfoliation and disintegration resulting from inappropriate design and construction, such as the placing of sedimentary stone with its bedding planes parallel to the direction of large stresses. or the use of a too strong mortar (e.g., Portland cement between softer stones or bricks).

(7) Damages, both mechanical and chemical, arising from ill-advised efforts at repair and restoration with substances that are not stable to prolonged exposure, or whose physical properties (e. g., thermal expansivity) do not match those of the stone.

(8) Disfigurement due to adventitious surface deposits of soot, dirt, grease, paints, etc."[3]

The emphasis placed on appearance and disfigurement is significant since these concerns typically fall within the province of aesthetics, a rather philosophic and subjective realm of thought, and again one subject to interpretation.

William Morris's 1878 "Scrape Anti - Scrape Debate" gives us historic precedent and helps us to understand why a preservation treatment such as cleaning, performed without pathological reason, is actually interpretive in nature.

To use the cleaning of buildings as an example of a treatment that can be applied solely for pathological reasons without addressing interpretive or aesthetic issues, the following analysis on the subject is provided:

Reasons for cleaning a building:

* Investigation to observe subsurface conditions

* Removal of extant damage

* Prevention of future deterioration

There are also reasons for avoiding cleaning as a wholesale approach to the building:

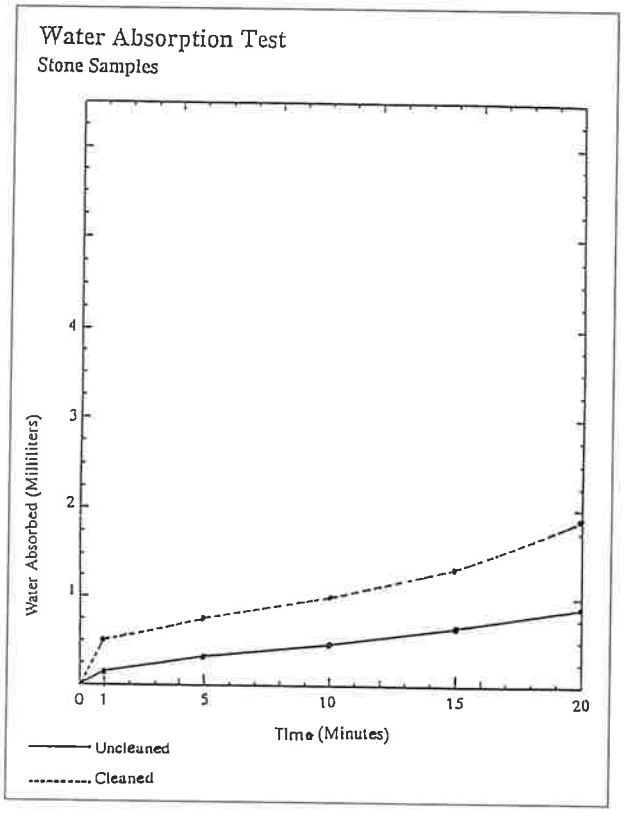
* It may only be necessary to clean localized elements which have a pathological need.

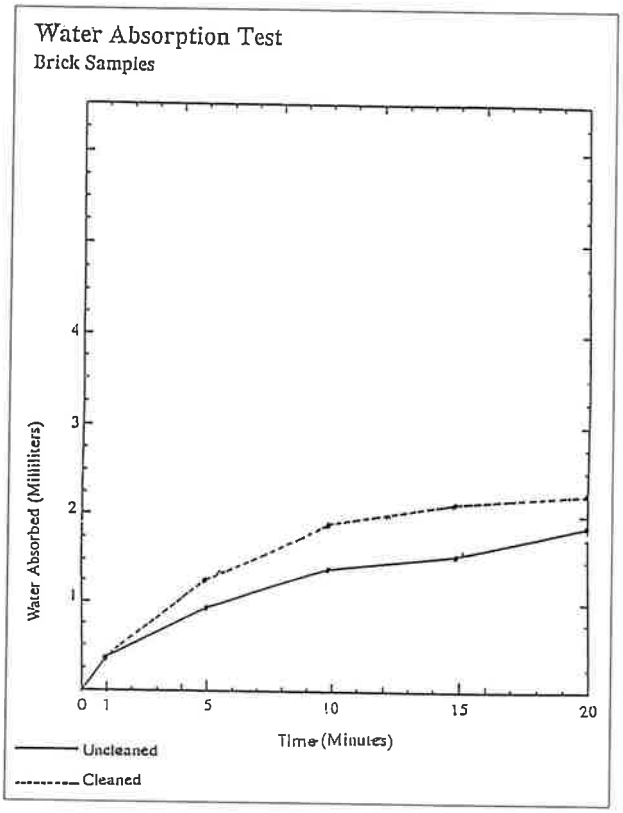
* Cleaning builds in a maintenance requirement. A building is revealed at a given point in time. (Did the building ever look as it does now after cleaning?) As a result of the intervention it becomes necessary to maintain the building's appearance and to ask the question to what extent has this obligation been fulfilled. There will be a need for additional standards.

* Cleaning often induces the need for subsequent treatments like consolidants and waterproofing which will also need monitoring and maintenance.

The following are some test results using the ASTM C96 Water Vapor Transmission Test and the Rilem Tube tests to determine if there is a need to clean an 1880's siliceous sandstone and brick masonry building. The tests indicate that the dirt on the exterior of the building is actually helping to repel water from penetrating the surface while allowing water to evaporate through its surface.

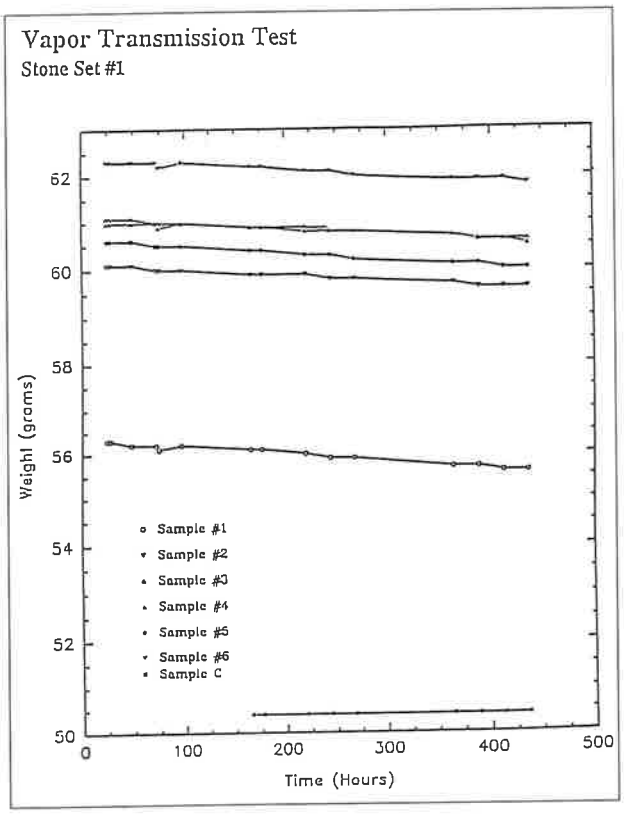
These results indicate that there is no pathological reason for cleaning and the decision to clean or not to clean becomes purely interpretive and/or aesthetic in nature.

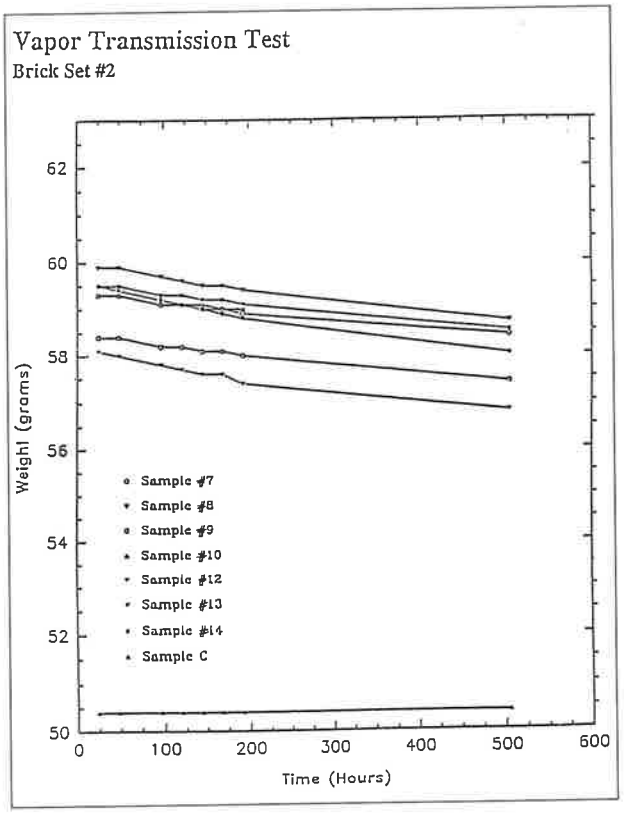




	STONE SET # 1	LEGEND
	SAMPLE # 1	S. E. corner 7th flr. balcony had approximately 1.8 in of crust on outside surface
	SAMPLE # 2	S. E. corner 7th flr. balcony 1/8 in crust on surface
	SAMPLE # 3	North facade, thin crust
	SAMPLE # 4	North facade, thin crust
CONTROL	SAMPLE # 5	Drilled from back of S. E. corner 7th flr. pce. and separated from main stone before the drill reached the outside crust. No crust - control
CONTROL	SAMPLE #6	Drilled from back of the S.E. corner 7th flr. separate from the main stone before. No. crust-control.

	BRICK SET # 2	LEGEND
	SAMPLE # 7	Crtyd. brick - crust on one end
	SAMPLE # 8	Crtyd. brick - crust on one end
	SAMPLE # 9	Crtyd. brick - no crust
	SAMPLE # 10	Crtyd. brick - crust on one end
NOT SHOWN	SAMPLE # 11	Crtyd. drwy - crust on one end
	SAMPLE # 12 & 13	Crtyd. drwy. - no crust
	SAMPLE # 14	East elev. - crust on one end





The issues of to restore or not to restore/to clean or not to clean have been with western society for nearly 200 years including such discussions as truth versus reconstruction in restoration and age value versus aesthetics and artistic intent. Such debates continue although less and less audibly as evidenced by a multi-million dollar cleaning industry which has developed under the umbrella of building preservation.

Conflict regarding the intentions of cleaning structures illustrates why the need for building preservation standards is so important. It is at the juncture where the technical meets the interpretive or the conservator meets the curator that the objective findings of testing and the subjective arena of interpretation must coalesce into action. Science and technology have taken us a long way in the field of historic preservation. On the subject of cleaning, it is now possible to clean buildings carefully and safely, to consolidate buildings and prolong their safety, to consolidate buildings and prolong their surface lives but at what investment and maintenance costs, and is it always with the welfare of the building in mind?

Interestingly there have been recent studies performed by Dr. C. Steffen, a psychologist working in the Department of Architecture, at the Delft University of Technology in Holland. He is conducting research into the experience of soiled facades, building color and texture.

"In one research project, people's appreciations of the façades of the building of the Department of Architecture itself has figured as a subject of research.

In this project subjected experience was measured with a technique known as the 'semantic differential'

With this technique, subjects are asked to judge the qualities of an object in terms of a series of seven-point scales, each having two antonyms as its extreme values. Antonyms are words with opposite meanings, such as beautiful vs. ugly, or masculine vs feminine. On each scale, the subject to be judged receives a score between I and 7.

Scores on the total series of scales provide a profile of judgments. which is called the index of experience for the object under consideration. In this way, it is possible to differentiate between people's experiences of, for example, clean and dirty facades.

In the present investigation, a list of 30 antonyms was used, arranged in such a way that they alternated in intensity: firstly the weak intensity was on the left side

of the scale and the strong intensity was on the right side (e, g., simple..... complex); then the strong intensity on the left side and the weak one on the right side (e. g., agitated calm)

The reason behind this alternation was to prevent subjects scoring automatically and without thinking.

In this investigation the following qualities were found to differentiate significantly between people's subjective experiences of clean and dirty facades,

Clean facade	*Dirty facade*
simple	complex
calm	agitated
hard	soft
monotonous	diversified
satisfying	unsatisfying
stimulating	depressive
quiet	busy
artificial	natural
clear	vague
sterile	fruitful
businesslike	playful
tidy	untidy
beautiful	ugly
orderly	confusing
objective	subjective

A factor analysis of these results revealed that subject's experience of clean versus dirty facades was based on six basic variables:

In fact facades were judged in terms of how businesslike, how orderly, how interesting, how complex, how stimulating, and how safe they were felt to be."[4]

It is clear from Dr. Steffens's research that our experience of buildings is subjective and that further such study is needed. Such study could include people's response to weathering and dirt on buildings of different architectural styles and ages.

To summarize, before we introduce an intervention into a structure which may have an interpretive impact upon it we need to have objective investigation. However, as we continue to pursue answers to our technical questions we must also seek answers to more experiential and theoretical questions with regard to the preservation of our built environment. It is first necessary to understand our goals for preserving our structures and our reasons for them before we can have a clear consensus of standards on which to base our treatments.

Notes

1. Philip Ward, *The Nature of Conservation: A Race Against Time,* (Marina del Rey, Calif: The Getty Conservation Institute, 1986) p. 16.

2. American Institute for Conservation of Historic and Artistic works, *Directory 1994,* (Washington: AIC, 1993) p. 13.

3. Giovannis G. Amoroso and Vasco Fassina, *Stone Decay and Conservation,* (Amsterdam: Elsevier Science Publishers B. V., 1983) P. VII.

4. L. G. W. Verhoy, *Soiling and Cleaning of Building Facades,* (London: Chapman and Hall Ltd., 1988) pp. 61-63.

HISTORY

The Evolution of Synagogue Space in Central and Eastern Europe from the 11th to the 19th Century

Rudolf Klein

1. Architectural Space as a Cultural Matter

Architecture may be interpreted as a mirror of cultural history, reflecting man's image of the world, and his place and role in it. The architecture of sacred buildings and their use of space is often a replica of the comprehended universe, a microcosm describing the macrocosm. Thus architecture embodies the metaphysics of a certain period and its culture. So changes in the metaphysics of a certain culture cause an evolution in the use of architectural space. In spite of all the differences between cultures and the way they evolve, the initial and end results of spatial developments are similar, ranging from the centre-oriented, topos-bounded space up to the geographically-independent and free-flowing space. This applies even for the apparently totally divergent cultures of the Euro-Mediterranean region and the Far East, in both of which the sacred column marked the beginning, and the centre-less flowing space the end, of this development.

The numerous intermediate stages varied, however, in different cultures, and sometimes even within them. The history of architectural space in European culture is radically different from that in the Far Eastern culture. While the European culture was marked generally by radical changes, in the Far East, the development was more gradual. In Japan, for example, the sacred pillar was introduced to the interior successively. Later, when the sacred pillar vanished completely, its former position continued to be marked on the floor. Expressed longitudinality and centrality as in the architecture of the Western culture did not exist in the country of the rising sun. Even the concept of flowing space developed step by step without a 'cultural explosion' as was the case with 20th century European modernism. In European culture, the history of architectural space developed in radical shifts from one clearly-defined stage to another, in some regions. In others, however, the development was continuous. For example, the dramatic shift from Gothic to Renaissance space in Western Christianity is absent in the Eastern Church.

In spite of the differences between the sacred architecture of the systems mentioned above, a common point for all was the existence of some kind of codification suggested by religious teachings or metaphysics, i.e. links existed between spiritual and physical environments.

Jewish sacred architecture, however, differed from the sacred architecture of many denominations because of the very absence of these links between the spiritual and spatial. Its codification, when it existed at all, came not from religious teachings in the first instance, but from elsewhere. Still, the spatial arrangement of synagogues exceeded the mere functional level, and its codification became related to the spiritual - although negatively, as we shall see later - for two main reasons:

1. Space is an unavoidable aspect of human existence, no matter whether explicitly discussed or not. Space expresses an order, in the non-visual sense, and establishes a link between ontological or even ethical entities and the spatial, real-life, tangible world, i.e. architecture. The synagogue service pre-supposes a certain spatial order and this has some architectural consequences.[0]

2. As a minority living among an alien population, Jews accorded great importance to maintaining their Jewish identity which forced them into a position of intellectual 'self defence'. This caused them to differentiate their sacred architecture from that of their surroundings. This self defense paradoxically implied the acceptance of the rules of the game dictated by the gentile environment. Thus the realisation of their desired dissimilation presupposed a certain degree of assimilation, i.e. the acceptance of forms in architecture without the acceptance of the content. So the Jews could not avoid taking a certain interest in architecture, even if it was a negative one. This interest became increasingly significant in time, in spite of the pre-eminently textual character of Judaism.

Thus the key to understanding the essence of synagogue architecture in the Diaspora lies, on the one hand, in the Jewish heritage, and on the other, in the influence of the gentile environment. So in this paper we analyse the differences between Jewish and gentile sacred architecture, in order to determine how synagogue architecture in Ashkenazi culture evolved.

2. Space Concepts of Western Architecture and the Notion of the Sacred

The history of architectural space is paralleled by the development of metaphysics, cosmology and consequently the notion of the sacred. The development of the notion of the sacred ranges from the primitive, touchable divine to total secularisation and the abolition of the sacred. In terms of architecture, the development was a gradual one, from the material to the immaterial, i.e. spatial. Of course, architecture is never purely an expression of the material or the immaterial. Even the most material archetype of architecture, the sacred pillar or the obelisk, implies a certain space around itself. Similarly, the most airy glass architecture also involves a small quantity of material. But, in practice, these two extremes rarely exist. Between them developed the various stages of architectural history.

According to Siegfried Giedion the history of Western architecture may be divided into three major periods.[1] (His ideas stem mostly from Frankl and Riegl but he reinterpreted them in the spirit of early modernism.) First is the , sculptural phase in which architecture, mainly sacred architecture, is observed from the outside. Second is the phase where the interior dominates. Lastly the phase in which these two concepts mingle is modern architecture. Although Giedion defines his classification formally, this development of physical, architectural space may be related to the notion of the sacred in each period. In fact, sacred architecture may be interpreted as a mirror of man's view of the world and his position in it. Sacred buildings reveal the character of the sacred in a certain society, and the relation between sacred and profane. So we shall try to relate the concept of architectural space in a certain period to the notion of the sacred as follows:

2.1 *The Topographic Space Concept and the Notion of the "Touchable" Sacred*

The first concept of space may be termed topographic. It relates to the physically approachable, a notion of the sacred that is tangible, the sacred as defined by Eliade.[2] This type of architecture is geographically rooted and is related to a certain significant topos. (Usually it has the meaning of an *axis mundi.*) It marks a centre which may be mythically or historically important. It is a place of contact between the earthly and the heavenly. Architectural space in the topographic period is usually an exterior with no strict separation from nature, thereby expressing a world view that man is an integral part of nature. It may also have an interior but one that is usually of minor significance. Consequently there is no firm boundary around the centre which is the focus, thereby implying a gradual transition from sacred to profane. Architectural form may take the shape of a phallic structure such as an obelisk, or it may also be aedicular. It is important to note that sacred architecture has no real interior. In the case of the Greek temple, the inside is not an approachable interior for the common man, because it belongs to God and only priests may be admitted. This concept expresses a certain distance from the deity. In order to comprehend the exterior no time component is required as one can understand the shape of the monument at first glance. It means a *hic et nunc,* here and now, expression. The members of the congregation face each other in an arrangement that promotes a strong community feeling. It is a place for sacrifices. To fully experience the sacred requires a coming close, a pilgrimage, a physical contact.

Although the topographic concept is mostly related to the idol-worshipping and polytheistic cultures, it may be present in the architecture of later phases, as one component in a complex situation.

2.2 *The Transcendental Concept of Space and the Minded Sacred*

The transcendental concept of space is the second stage in the development of Western architecture. It originated during the Roman Empire, but dominated mainly in the Middle Ages.

The sacred is more or less geographically independent. Sacred space strives to achieve spiritual contact with the

divine. Such a contact requires a strict separation from nature (profane), which is why the sacred interior space was created. Perception of the interior involves time, as one has to walk down the nave, or the aisle in order to comprehend completely the interior. So the world is seen as a process. The church interior is the metaphor of the heavenly Jerusalem, its *Cardo*. Architecture expresses a well-defined philosophical content strictly codified into a programme.

2.3 *The Concept of Isotropic Space and the Denied or Dispersed Sacred*

The concept of isotropic space appeared in the European culture in the 20th century as the final stage of modernisation which began in the Renaissance or perhaps even earlier. (Japanese culture reached this stage much earlier but this did not influence synagogue architecture in Europe.)

Modern isotropic space did not appear completely *deus ex machina* (concerning *deus* it just strove to deny him). The Renaissance church had already practically abolished the *via sacra,* and the central focus was different from that of the previous epochs,[3] The centre under the dome is empty and there is no sacred pillar or altar underneath. The latter is dislocated from the centre. When walking in the interior, one feels the climax in the very centre of the space and the altar is, after that, *post festum.* The magnet which draws us eastwards is not so much the altar but the vast space under the dome. Once we have experienced the magnificence of this central space any material focus, even one that expresses the highest immaterial value, loses some of its prominence. With the establishment of the dome, not only the dominant *via sacra* is being challenged but a secondary axis emerges perpendicular to the eastward movement, which is practically equal to the main axis. Due to the very centrality of the huge Renaissance domes, even the diagonal directions become important. This results in the degradation of the preferred direction the *via sacra.* (If there are more axes, they cannot all be preferred.) Although the Baroque period re-establishes the longitudinality of the church, it is not the same as the former longitudinality of the unanimous movement towards the altar.

Twentieth century modernism went further. It has abolished any preferred centre or location, stressed direction, with the sacred element being everywhere or not existing at all. (The everywhere and nowhere have one point in common which is that neither is somewhere.) However, the twentieth century acts not only on the level of a particular building but also on the urban level. The building which represents the sacred does not dominate the town and the building which dominates the town is no longer the church. The town or village loses its spiritual centre. The church as an institution which concentrates the spiritual no longer exists. So the choice of the centre is a personal one and not a community one. (Hans Sedlmayer, *Die Verlust der Mitte).* The space flows freely and, although the time component exists, it does not define a clear path. Space is not limited by boundaries, and man's freedom of movement is virtually unlimited. The dichotomy of in- and out-door space disappears, theoretically leaving no distinction between sacred and profane. Space is represented by a grid which replaces the former orientations determined by tradition (church tower) or nature (rivers, mountains, etc) The grid is neutral, it does not take account of previous centres, neither the man-made nor the God-made. Its application presumes that the world may be charted by man. The grid does not act only on the earth's surface but also involves the height, giving it equal importance as the horizontal. The sky is no longer unattainable.

In practice, the ideal cases mentioned here are very often mixed up but, almost always, one component is dominant according to the kind of sacred.

3. Ashkenazi Synagogues in the Context of Western Culture

3.1 *Basic Characteristics*

Sacred architecture was influenced generally by the religious teachings and metaphysics. It was dictated by scripture, on the one hand, and, on the other, by material factors, such as building techniques and local circumstances (building materials, customs, geographical data, geomor phology etc.) However, the influence of the religious teachings on sacred architecture was not the same for the Christian religion (or any other developed religious system) as for the Jewish religion.

The fundamental difference between Christian and Jewish sacred architecture concerns the transfer of ideas. The architecture of the church takes on the role of transmitting religious teachings. It is a vehicle for the better understanding of basic religious ideas - the notion of time, the idea of improvement, for example, on both an individual and global basis , the aim of life etc. These are all represented by the time-component (longitudinality) of the interior of the Western church up to the Renaissance and Reformation). In some Christian denominations there are direct links between the scripture and the sacred architecture. Thus the space (and language) of the church architecture is defined by elements of the scripture. (The vision of Saint John programmatically defines the arrangement of the Church interior, for example.) During the ideologically coherent and theoretically well based periods of church architecture, such as during

Fig. 1. Cracow, Stara Boznica - prayer room taken from the women's gallery. Until the late Renaissance larger synagogues were nearly central, usually two-naved structures having the Bimah in their focus between two central columns.

Fig. 2. Cracow, Stara Boznica - prayer room taken from the Bimah looking towards the women's gallery. Contrary to the philosopy of the longitudinal church interior, which has the nave - via sacra, in fact a void - along its innermost part, the synagogue houses the Bimah in its heart, which is itself like a hut, but it is transparent suggesting the idea of protection.

that of the Scholastics, precise laws of correspondence connect the *modus essendi* and the *modus operandi* which contributed to the achievement of a sophisticated universal system of ideas embodied in the architecture of the High Gothic.

Jewish sacred architecture has had no explicit guidelines concerning the architecture of the synagogue, due to the very nature of Judaism. This emphasises an ethical rather than a theological approach which could have manifested itself in space. It neglects the visual and is heavily concentrated on the text. (The prescriptions that the synagogue interior should be entered via two doors, or the differences in floor levels, i.e. the few steps in front of the Bimah and Ark, are far from being enough to form a coherent building program.)

This neglect of the visual and lack of ideological content which might have been conveyed via architecture paves the way for the introduction of alien elements which are then filtered and selected and/or opposes. (It does not change the situation much; officially synagogues are only meeting places.) Thus, instead of a position emanating from the scripture we witness, on the one hand the adoption of acceptable elements from the Christian environment; on the other an opposition to unacceptable elements. (A set of decorative elements representing Jewish symbols was also created, but they were too few to solve the problem and fill up the vacuum which resulted from the very nature of Judaism.) One type of element taken from the Christians is mainly textual, i.e. the language of architecture[4] (building materials and techniques, some neutral decoration). A second relates to content, i.e. the arrangement of the interior space. The latter is discussed here.

The Catholic church interior symbolises a path, a *via sacra,* which is, at the same time the *via vitae* or life path. So it is spatial and temporal, having a clearly defined beginning which is the entrance (birth) and an end which is the altar (death, i.e. beginning of heavenly life). The congregation forms a homogeneous, elongated rectangle. The spiritual focus of the interior is far from its geometrical centre, and dislocated from the main point of the congregation. Although there may be many altars, there is only one important orientation in the interior, the main altar. If the service is held in front of a secondary altar, the situation is similar, in so far as there is again one functioning focus, and this is dislocated from the centre of the congregation.

Historically, the most wide-spread form of Ashkenazi synagogue interior may be characterised by the nearly central arrangement. The congregation is seated around a focus, the Bimah, which is usually in or close to the geometrical centre of the interior. However, besides this centre, there is another important direction, the Ark, which is on the Eastern wall. The synagogue interior is characterised by this basic bifocality, which has its meaning too. However, it is

not only a simple bifocality, since these foci are different in quality. In fact there are two spacial concepts acting simultaneously in the synagogue interior, each expressing a different concept.

1. The first concept is similar to the topographic concept discussed before, having a concrete touchable centre, the Bimah, the place where the scripture is read. Contrary to the original topographic concept in the idol-worshipping or polytheistic period, when mere presence and proximity were enough to experience the sacred, here an intellectual effort is needed for the participation in the service. The sacred is not sacred *per se*. It is not physically sacred as a stone, a limb of a God or a Saint. It is sacred due to its content. The emphasis is on the ethical and not on the ontological. The Bimah is the place where the scripture "is active" where it is read. (In its passive state it is in the Ark and then it is part of the Eastern structure / complex.) This activity involves the local, the concrete community, the *here and now,* the actual interpretation of the eternal, the Torah. The centrality of the Bimah excludes the temporality expressed in the church interior of Western Christianity. The aim is not outside our actual being, but it is within us. Our life on earth is not a preparation for a future eternal life but it is a duty, which is to be realised in accordance with the law. The structure around the Bimah (which took the form of a decorated grid in the Romanesque and Gothic periods, a separated space between four columns in the Renaissance and Baroque nine-bay structure[5] reinforces its touchable character, its physical presence. It somehow becomes a spiritual and transferable/portable *axis mundi* for Jews living in Exile. The central arrangement, where the congregation look into the faces of the others opposite, also expresses belonging to a coherent community. This is reinforced by the custom that the first row of worshippers, usually the elders of the community, do not face the Bimah (they already know the content of their scripture) but face the other members sitting around the Bimah. However, unlike real topographic architecture, which usually belongs to a remarkable topos, the synagogue has seldom a special relationship with the soil it is built on. The synagogue is floating. Its location is not one that has been selected because a saint has died there or because an important happening has occured there. The place is of minor significance, and may even be an unfavourable one, one that has been allotted to the tolerated, or hated

Fig. 3. Apostag (Southern Hungary), - prayer room of the late Baroque synagogue. During the 16th century mostly on Christian influence the floor-plan of larger Ashkenazyc synagogues became almost strictly central and the previous two-naved arrangement was replaced by a special kind of tripartite division. This latter, however, opposed the idea of the central dome of the Renaissance and Baroque - the big void in the heart of the church - creating the nine bay structure. The nine-bay synagogue structure is chracterised by the four central columns which flank and protect the Bimah.

Fig. 4. The Reform synagogue in the Jeruzalemská Street in Prague - view towards the Eastern wall. After Emancipation, during the 19th century the synagogue space has lost its previous identity, becoming elongated. The Bimah was dislocated from the center of the prayer-room and accompanied the Aron haKodesh on the Eastern wall forming an altar-like structure. Instead of spatial identity the synagogue was given a special language of architecture, the so-called Neo-Moresque style.

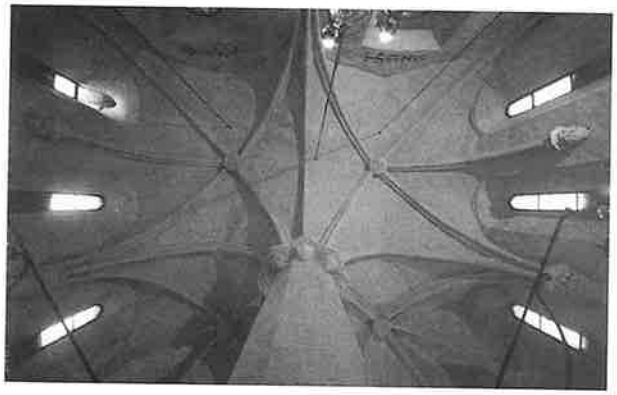


Fig. 5. The famous Altneuschul in Prague - detail of the vaulting (the fifth rib is often explained as a wish to avoid the crossform). Structural elements of synagogues before Emancipation were taken from the Christian architecture - except some motives with explicit Christian connotation, like the cross-form.

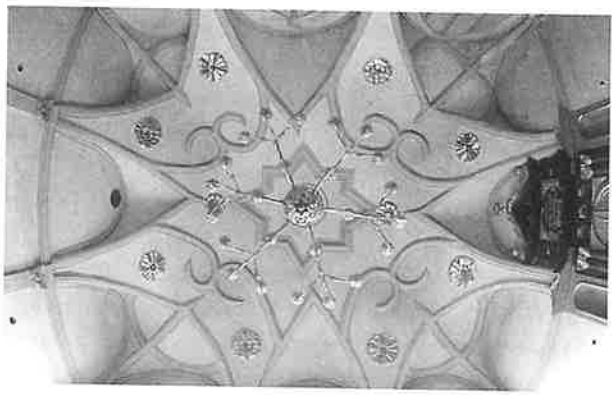


Fig. 6. The High Synagogue in Prague - vaulting and chandeliers. Some Jewish motives, like the six-point stars appeared mostly in fixture or decoration.

minority. It is not stable because of its physical attachment but because of a spiritual stability. Contrary to the church, which represents an important centre at an urban/rural level but whose inside negates the real touchable centre referring to the unearthly, the synagogue is not significant for its location (although sometimes it was an important centre inside the Ghetto) but provides a centre in its interior, a centre for those who enter and accept it.

2. The second spacial concept prevalent in the synagogue interior is partly similar in its philosophy to the transcendental concept, which deprives the interior of the real touchable centre relating to a content (spiritual focus) outside the space of the congregation and off-entre in relation to it. It is neither *here nor now.* The orientation towards the East and its materialisation in the Ark negates the *hic et nunc* meaning of the Bimah and central arrangement reminding the Jews that they are in exile, that their very presence in all its apparent concreteness is only a temporary solution, an interim phase. The Ark is thus a materialisation of the eternal, housing the holy of holies, the scripture. Although the Ark has a similar position to the Christian altar, it has less emphasis, not only because of its rival in the Bimah, but in its significance, marking an orientation eastwards, i.e. towards Jerusalem. In this context the Ark, which houses the scripture, is only a mediator between Jerusalem and the present concrete space and place. The Ark is the focus of interest during only a certain proportion of the service and not at all times, as with the Christian altar.

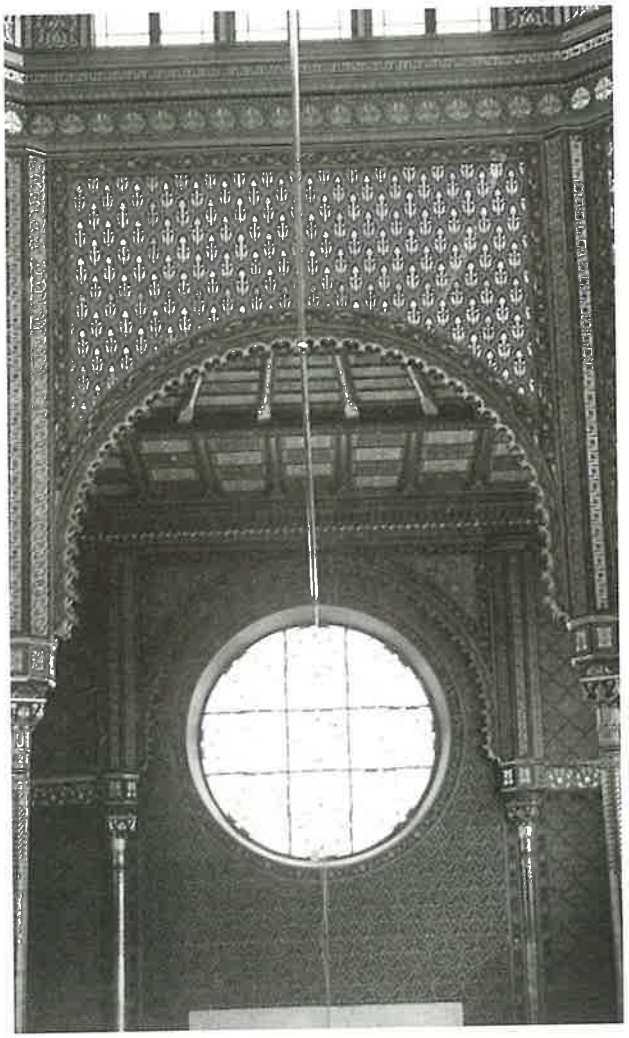
This ideological bifocality is underlined by the service. The focus changes during the sermon. So the spatial arrangement of the interior has to be appropriate both to experiencing the physical centre and to the spiritual eastwards orientation. This bifocality is, however, much more than a merely religious issue. It represents an attitude which tolerates duality, the co-existence of two entities under one roof, and marks an aptness to change viewpoints, to observe things from various angles. (No wonder that this feature of the synagogue interior was abolished during the assimilation in the 19th century.)

Besides conceptual differences with the Christian church, i.e. proportions and focalisation, Jewish sacred space was distunguished by technical/instrumental factors as well. These factors resulted from the intellectual self-defence issue mentioned previously. So, even in cases where the Christian church started to resemble slightly the synagogue, as in the case of the Renaissance central interior, for example, the synagogue was able to preserve its identity. This problem is now discussed in the context of the brief historical overview of synagogue architecture.

3.2 *Some Important Stages in the Development of Ashkenazi Synagogue Architecture*

As I hinted already, the spatial concept of the synagogue interior remained practically unchanged for nearly a millenium, from the early Romanesque period to the 19th century, and this extended to the 20th century in some remote areas of Eastern and Central-Eastern Europe. During this time, language elements for synagogues were taken from the gentile secular and sometimes sacred architecture, with the exception of some forms which had Christian connotations. However, the forms and elements deployed often showed a genuine attempt at differentiation.

The six-bay structure, for example, does not differ only in its proportions from the church interior, but also in the way that space is distributed i. e. vaulting as well, which is in the case of the synagogue a mere technical issue, unlike the church, where the technique was linked to the ideology and its all embracing spiritual system. However, if the technical solution showed some explicit Christian elements, it was



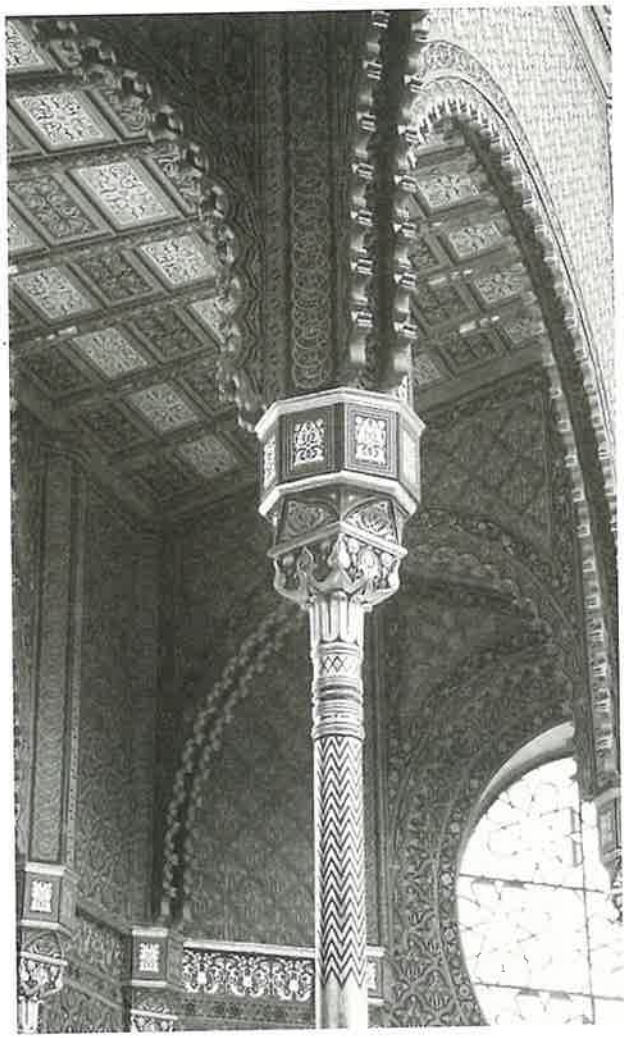


Fig. 7. and 7a. - Detail from the octagonal drum of the Rumbach-Street Synagogue in Budapest designed by the young Otta Wagner. After Emancipation the space became alike to its Christian counterpart and Oriental decoration took over the role to convey identity.

unacceptable, even though technique was of secondary significance. Thus, while the church had a tripartite division along the transversal axis, synagogue space was divided into two parts, naves (a-a). It is not only a question of numbers, but the design as well. The tripartite Christian division features unequal spans (A-B-A) with one major (higher and wider) space and two auxiliary spaces, aisles, to show the existence of hierarchy. (It is true that basilical design was also chosen because of advantages in the lighting but, as the example of the German in the *Hallenkirche* shows, churches were also built without basilical windows.) Along the longitudinal axis the situation is similar. The Gothic church shows unequal intervals (M-N-O-P-Q), the synagogue is divided in to three or four equal bays (m-m-m or m-m-m-m). The central bay is not emphasised in the six-bay structure of the Romanesque and Gothic period.

During the 16th and 17th century the difference between the church and synagogue interiors disappears in terms of proportion. Both of them adopt a central arrangement. However, the synagogue retains its identity through the wide-spread use of the four-column or nine-bay arrangement. The nine-bay structure became wide-spread in Central and Eastern Europe during the Renaissance and Baroque periods. It demonstrates a wish to resolve the problem of the clash between the Bimah and the central row of columns. Thanks to the elimination of the central row of columns, the conflict/ contradiction between the bearing structure and content is resolved. The Bimah is no longer between the two central columns which block the view of the ark and hamper assembly around the Bimah. Thus the bearing structure reinforces the concept of the space.

This relatively small change in synagogue design may be related to the radical changes occurring in the Christian environment, not so much directly changing the church interior, but more in the approach which brought order to the world by arranging it according to a clear geometrical

pattern. (There is a synagogue in Tomar-Sephardic territory - which probably dates from the mid 15th century, showing the nine-bay structure for the first time, as far as we know but it is not clear whether it exerted much influence on Ashkenazy synagogue architecture. However, in spite of the similarity in proportions, the nine-bay synagogue structure still features a significant difference compared with the central space of the Renaissance Catholic Church or the Reformed Church. The church's centre is void and large quantities of material (heavy pillars) are located around that void. In the case of the synagogue the material/mass is in the centre and the void is around the mass. This mass in the centre however is perforated so that there is a space within a space structure. Thus the Renaissance play between the mass of material and the void is not present in the synagogue interior.

As the very centre of the Renaissance church interior is empty, it draws us into the space under the dome like a magnet. But the moment we reach this point, we realise that *we are* in the centre of the space, the subject of admiration, our *individual being* and not any religious concept or meaning referring to something outside our personal existence. In contrast, the nine-bay synagogue interior still has the Bimah at its centre, which is not void, thereby allowing the possibility of personal fulfilment. And, even if we step up to the Bimah, we are not in the centre of the universe, as in the case of the typical Renaissance church, for example Bramante's version of San Pietro. Stepping up to the Bimah, there is no free void around us, which allows free movement and a freedom of choice, though it is a confined, if visually open, space. Our movement is restricted, but the view is unimpared. However, the feeling is not so much one of confinement but one of protection, because the pulpit of the Renaissance Bimah is not in a grid which closes us in as in the Middle Ages, but takes the form of a railing that surrounds and protects us.

If we superpose the floor plan of a nine-bay synagogue structure on the floor plan of a Renaissance church interior, we see that, apart from the similar proportions of the space and the different mass-space relationship discussed above, the difference between the Christian and Jewish concept is revealed also by the distribution of spans. The Renaissance church usually has a larger span in the centre where the void is large and narrower spans at the sides. The nine-bay synagogue structure, on the other hand, usually has a smaller span in the centre around the Bimah, and bigger spans on the outside [6]

The cross-section reinforces what the floor plan suggests. The highest part of the church is the central cupola. The synagogue in contrast is lower at its centre. This difference could be interpreted as a consequence of hierarchical thinking on the one hand and non-hierarchical on the other. So, despite departing from the strictly religious course taken during the Renaissance, Christian reasoning still retained elements of hierarchy, even if they were secular. The existence of the centre is still important, even if it is void.

The Counter-Reformation, which tried to re-establish the pre-Renaissance longitudinal arrangement, creating a synthesis in church architecture, did not affect the synagogue interior apart from changes in Baroque vaulting techniques and the application of contemporary decoration such as the festoon. This applies for the Neo Classical period too. On the exterior, stylistic alterations were reflected only as changes in the language of architecture and affected mostly the decoration. So, since the Renaissance when the nine-bay structure was introduced changes in the synagogue were not profound and its essence was practically unchanged. The changes introduced were the consequences of employing Christian builders and not so much an act of propriety.

Later, however the synagogue interior did change, mainly as a result of emancipation and assimilation. However, it was not only the use of space that changed, but the whole relation between architecture and spiritual issues, between space and language as well as the synagogue service. During the aforementioned period the synagogue lost its previous architectural identity, acquiring a new one based exclusively on gentile elements and ways of thinking even if Jewish symbols were also present. [7]

Owing to the *Haskala* the Jewish Enlightenment, Western order was introduced to the synagogue. In theory, Western order meant the acceptance of the linkage between *'modus essendi'* and *'modus operandi'*, i.e. the abolition of the independence or even contradiction that existed between the language and space of synagogue architecture that was characteristic of previous periods. In practice this did not occur. In other words the Jews dismantled tradition and attempted to establish a style. The first target of this cleansing was the main architectural feature, the use of space, codified during the history of the synagogue. The problem of style emerged only later as the reforms deprived the synagogue of its previous identity.

At first the central arrangement and the double focus of the synagogue interior was abandoned.[8] The placing of the Bimah in front of the Ark served two ends. It allowed a longitudinal arrangement of the synagogue, creating an emphasised nave, as in the church, because it was unhampered by the Bimah. It meant that the bifocality also disappeared, which was very irritating for Christians[9] This

was not only because of the seemingly chaotic (in fact a very well defined) order of service which did not follow the Christian patterns, but also because its philosophic meaning was incompatible with Western Christian values. In particular, such a duality was interpreted by the Christians as showing instability of behaviour and lack of loyalty to a single system, as it involved the changing of views, questioning the position and some of the basic values and axioms of the host society. People who attended such a service could not become loyal subjects of the *Kaiser* and reliable citizens of a society requiring the discipline and austerity of the *Gründerzeit.* Thus radical changes were inevitable which, besides abolishing existing features, tried to introduce and codify new ones.

Depriving the synagogue of its essence could only be achieved by proposing a substitute. This substitute needed to ensure the identity of the synagogue. It needed to be a language of architecture, to be part of the Christian system and to combine 19th century Historicism with some specifics relating to Jewish history. The solution was the Neo-Moresque language offered by the Christians, because the other major historic styles, like the Gothic, the Renaissance and the Baroque, were already taken. Yet the Jews were extremely happy with the Neo-Moresque because it offered them the chance to become part of the system which they had previously been denied . It did not matter that it was an interior architectural expression in its rank and significance. The introduction of the Neo-Moresque languages was justified by its reference to the glorious past of Jewish culture in Medieval Spain.

By introducing a longitudinal floor plan and dislocated Bimah, the so-called emancipated Jews wanted to underline the fact that the basic content of their religion was the same as that of the Christians-hence the similar spatial arrangement. Only the means of its expression was different, i.e. the language of architecture. In other words, the content was the same but it was expressed using different, or seemingly different, languages. Thus the Neo-Moresque language was an ideal interim solution which appeased the Jewish conscience. It reassured the Jews that their identity was not entirely forgotten and the Christians that the Jews were still clearly distinguishable.

I think it is important to stress that the Neo-Moresque never became a style but only a language, since it had no direct spatial implications. Usually but not always it was employed in parallel with a longish floor plan, and it was not codified in combination with any spatial arrangement, as for instance the Gothic style was with its longitudinal church interior. The Neo-Moresque was codified only as clothing *(Bekleidungstheorie),* leaving open the question of spatial arrangement.

If 19th century European Jews would have succeeded in creating a style - not only in the formal but in the spiritual sense as well - it would have meant an end to the duality of synagogue architecture, to the split between space and language which had characterised synagogue architecture since the Romanesque period. It would have meant that the process of assimilation was totally accomplished. The fact that the Neo-Moresque could not form an ideologically and formally coherent system underlines the fact that it was only a language, and just one in the set of languages which Jews used to express their exterior identity in architecture. Though it was contradictory to exchange the role of content with that of language, what I call the *Jewish Structural Principle* was allowed to survive in architecture. The duality between language and space continued during most of the 19th century, paving the way for a change that at the end of the 19th century brought back the central space concept and gradually abandoned the use of Neo-Moresque language in synagogue architecture.

As the assimilation of the Jews continued, the Neo-Moresque language became untenable. The exotic style which had previously been required to boost the diversity of the urban context became, as Jewish influence increased, tiring or even frightening for some gentile people.

Those who tried to reform synagogue architecture further attempted to convince the public that Neo-Moresque expression was unjustified as Jews were Germans or Austrians or Hungarians of Jewish faith, and as such should not have a separate language of architecture. In the most assimilated communities the Neo-Moresque was abandoned and the identity of the synagogue yielded to a spatial arrangement. However, it was not the previous central synagogue interior with the Bimah as a focus. Now the centre was empty. The central arrangement resulted from formal considerations, The dome being idealised as the tent in the desert or sky, but also being seen as a suitable form to give identity and significance to a building in an urban context, still distinguishable from the spires on churches. In fact the central arrangement resulted in a theatre-like interior where people were able to watch one another. According to contemporary records, in big cities the ladies in the gallery (which no longer had the grid) used opera glasses to watch each other and their husbands or boyfriends who were sitting on the floor below and who could be distinguished from the husbands because they still wore a head-covering which was no longer the kipah but a cylinder.

We might summarise the development of Ashkenazi synagogue architecture as follows: The use of space in the

synagogue interior has an even and stable history featuring a predominantly central arrangement and double spatial focus. This reflects the expression of a deep spiritual continuity from early Romanesque times to the Enlightenment, and extending as far as the 19th or 20th centuries in some countries. The language of architecture, however, underwent more frequent changes as a consequence of the stylistic changes occurring in the environment. Christian influence was almost always present, but before emancipation this influence was resisted becoming a negative influence, i.e. the omission of some spatial arrangements. That is why Jews seldom used the tripartite division of the interior in the Middle Ages, although it was the most common form in Antiquity.

After emancipation the situation changed completely. Spatial identity was given up and architectural language took over. In other words after emancipation Christian influence became more direct and eventually led to the former spatial arrangement disappearing and the introduction of a separate language for synagogues. All these changes happened relatively fast. A real historic codification did not emerge, and modernism and later the Holocaust, eradicated European synagogue architecture.

Notes

O. Let me refer to Ezekiel s Temple, which was never built, but which was thoroughly documented in scripture. This piece of non-existing architecture proves the thesis, that spatial organisation could be significant in the Jewish tradition as a manifestation of order. It is probably more significant than a concrete, tangible piece of architecture which is merely functional.

1. Siegfried Giedion: *Raum, Zeit, Architektur - die Entste-hung einer neuen Tradition* .

2. Mirca Eliade : *The Sacred and Profane - The Nature of Religion,* Harcourt, Brace, Jovanovich Publishers, San Diego New York, London, 1959, pp. 32-50

3. Although the transept and the crossing represented a slight challenge to the continuity of the *via sacra* and prominence of the altar, it is still like taking a breath before the altar. Only when the lantern tower became a huge dome, as in the case of Santa Maria della Fiore built by Bruneleschi did the philosophy of the interior get changed. Later on, in the San Pietro by Bramante the nave and transept practically disappeared and the dome increased further in relation to the other parts of the church.

4. Architecture is made up of two different and dialectically connected elements : a) the material, the tangible - columns, vaults, walls, etc.; and b) the immaterial, intangible - the space, which exists, thanks to the material. Material parts can be related to the language, and the immaterial or space to the content. So we can speak about the language of architecture and space. What about style? Style is both language and space. Stylistic codification linked space and language elements during the historic periods of architecture. Style in architecture may be considered as a world view expressed in a codified way. So it is irrelevant to make a distinction between style and language in the times of big historic styles, during the Romanesque, Gothic, the Renaissance or the Baroque period. In the Christian world, the divergence of style and language occurred after the Enlightenment, as a consequence of secularisation and reduced social cohesion - the transformation of *'Gemeinschaft'* to *'Gesellschaft'* as Ferdinand Tönnis put it. This transformation resulted in reduced artistic codification of buildings. In the case of synagogue architecture, the split between style and language began much earlier than in the case of Christian architecture, i.e. from the very beginning of Ashkenazi synagogue architecture, because of the rift between content and language. I think it has come into being as a consequence of the living in the Diaspora, on the one hand, and because of the absence of codified Jewish language of architecture, on the other.

5. As synagogue architecture is lacking its own language, and as it borrows the language elements from the environment, Roman, Romanesque, Gothic, Renaissance, Baroque gentile architecture it could not achieve a coherent expression. Namely its genuine spatial concept came into conflict with the borrowed language elements hampering the creation of a style. That's why a so-called 'gothic synagogue' is only partly gothic, i.e. Gothic in its language of architecture, but genuinely Jewish in its space, which is far from the logic of the Gothic style, i.e. longitudinal direction, centre outside the congregation, etc. etc. Thus the traditional stylistic periodisation according to Christian periods is not adequate in the case of synagogue architecture as it is commonly used. It would be better to use a classification which takes the spatial concept for its starting point. However, on the other hand such a classification would not be precise enough to denote the precise date of the erection of the synagogue as the space concept was changing not as rapidly as the language or the styles of the gentile environment.

6. In numerous cases, however, the spans are equal, but the spatial identity of the synagogue is still preserved. Some scholars claim that the development of spans in the nine-bay synagogue tended towards equal spans, but so far there is not enough evidence to prove this. If such evidence were available, it would be interpreted as a step towards the isotropy of space.

7. Even in the selection of these symbols, the Jews introduced a form of self-censorship. They omitted symbols which underlined specifically Jewish symbols, such as the Menorah which alluded to the abolished idea of the statehood of Israel and the return to it, and favoured universal symbols stressing common values of Judaism and Christianity, such as the tablets of the law.

8. During these transformations, there were sometimes interim solutions and compromises: longitudinal floor plan with a central Bimah, or central floor plan with eastern Bimah. Although orthodox synagogues were more conservative, numerous orthodox synagogues had longitudinal floor plan or sometimes even with Bimah in front of the Ark.

9. In the times of the big reformers numerous publications waged a war against, as they put it, the unsystematic course of the synagogue service which needed order. They meant Christian order. i.e. prayer, singing, etc in unison.

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L'Architecture des années 1920 en France : villas et ateliers d'artistes

Christiane Schmückle - Mollard

1923-1931, Naissance du mouvement moderne

S'il me semble intéressant de relater cette période de la production architecturale en France, c'est parce qu'elle s'exprime comme un phénomène particulier très rare que l'on ne retrouve qu'une ou deux fois par siècle dans l'histore de l'art : l'époque où toutes les productions artistiques atteignent au même moment un sommet comparable au style gothique à l'époque de Saint Louis.

Les années de l'Art Deco de 1923 à 1939 se divisent en deux périodes distinctes. Une première période de 1923 à 1931 qui est une phase de mise en place où la commande publique échappe aux architectes modernes, et une phase de certitude à l'époque de l'industrialisation entre 1931 et 1937.

Les années Art Deco sont marquées par le salon des Arts Ménagers de 1923 où sont présentées pour la première fois les cuisines laboratoires conçues par des architectes. Le salon des Arts Décoratifs de 1925 où la France se distingue par la qualité luxueuse de ses créations artisanales (vitraux, ferronnerie, mobilier, signes Printz, Ruhlmann, Cufrène, Chareau, Elleen Grav...) et l'Allemagne par ses créations industrielles naissantes issues du Bauhaus autour de Gropius.

Entre 1926 et 1934, Emile Ruhlmann aménage les volumes des anciennes écuries et remises à voitures de l'hôtel du Comte Potocki, construit dans le 8ième arrondissement à Paris en 1882 par les architectes Viard et Destugues. Nicolas Potocki y séjourna jusqu'en 1921, date de la vente de l'hôtel à la Chambre de Commerce et d'Industrie de Paris.

Les écuries étaient ouvertes sur le jardin par de hautes baies en plein cintre. lci le decor blanc et or d'Emile Ruhlmann reprend avec une grammaire décorative de son époque l'esprit des intérieurs de style Louis XVI, à laquelle font également référence les sièges verts et or qu'il crée pour cet aménagement.

L'année 1930 marque un tournant avec la première exposition de l'Union des Artistes Modernes, où sont présentés des ensembles architecturaux et décoratifs d'une harmonie exceptionnelle et empreinte de modernisme.

L'Exposition Coloniale de 1931 confimera le goût de la France pour l'Art Nègre mais ne sera pour l'architecture qu'un épiphénomène. De cette exposition est resté à Paris le palais permanent des Colonies, aujourd'hui Musée des Arts Africains et Océaniens. Ce musée de l'histoire de la colonisation sera le seul palais construit à Paris entre 1900 et 1930. Commande du Maréchal Lyautey en 1927 aux architectes Abert Laprade et Léon Jaussely pour l'Exposition Coloniale de 1931, il fut rattaché à l'époque de sa construction à la tradition gréco-romaine, et considéré comme un ensemble d'un classicisme monumental.

Les bas-reliefs de la façade à peristyle, les ferronneries et les aménagements et décors intérieurs qui en font l'originalité, font intervenir les grands créateurs et artisans d'art de l'époque. Les deux grands salons qui accostent le vaste vestibule d'entrée sont dus à Emile Ruhlmann (salon "l'Afrique") et à Eugène Printz (salon "l'Asie"). Les ouvrages de ferronnerie sont des créations de Prouvé. Les 1000 mètres carrés de panneaux de pierre sculptée de la façade sont l'oeuvre du sculpteur Janniot.

La grande exposition universelle de 1937 qui clôturera cette période avant la grande guerre de 1939 permettra de presenter deux oeuvres particulièrement intéressantes : le Pavillon de l'Union des Artistes Modernes de Georges Henri Pingusson, et le Pavillon de la Lumière de G.H.Pingusson er R.Mallet-Stevens.

Les années 1923 - 1931

La première période, celle des années 1923 à 1931 m'a paru mériter un développement particulier car elle témoigne de la naissance de l'architecture moderne.

Elle trouve ses fondements dans les productions avant-gardistes des années 1903 à 1914 dans lesquelles Auguste

Perret à Paris et tony Gamier à Lyon se distingueront par leurs créations originales, et dans les oeuvres de El Lissitzky, d'Adolf Loos, de Charles Rennie Mackintosh et de Joser Hoffmann qui exerça une grande influence sur le jeune Robert Mallet-Stevens lorsque son oncle Stociet fera appel à l'architecte pour sa villa de Bruxelles, le "Palais Stociet" en 1905.

Les chantiers de la deuxième décennie s'éloigneront du concept d'unité à l'exception de la villa Cavrois à Croix près de Roubais où Robert Mallet-Stevens tenta de retrouver l'unité et la perfection dont témoigne le "Palais Stociet".

Dans les années 1930, l'ère des grands chantiers s'ouvrira. Musées, palais parisiens, casinos de province constitueront une collection d'édifices qui mériteraient un développement particulier.

Depuis 1965, la France reconnait le patrimoine architectural des années 1920-1930. Le premier Monument Historique du 2e quart du XXième siècle a été classé par André Malraux, en 1965, pour sauver une oeuvre majeure de Le Corbusier de la démolition : la villa Savoye, en région parisienne.

Sur 168 édifices de cette décennie, inscrits ou classés parmi les Monuments Historiques, on ne compte qu'une quarantaine d'hôtels particuliers, villas d'artistes ou immeubles dont les intérieurs ont été le plus souvent modifiés, à l'instar des ateliers du peintre Amédée Ozenfant (1923)[2], oeuvre de Le Corbusier, et de la maison Guggenbühl (1926) oeuvre Lurçat. De rares édifices témoins de cette époque conservent leur décor d'origine. Quelques tentatives sont entreprises aujourd'hui pour rendre aux édifices qui les ont perdus leurs volumes, leurs couleurs, leurs huisseries, et parfois leur mobilier.

Après un exposé général sur les édifices majeurs des années 1923-1931 quatre édifices restaurés ou en cours de restauration seront présentés brièvement : l'Institut Financier du Comptoir d'Afrique des frères A. et P. Fournier (1921), aujourd'hui siège parisien de la *Baverische Vereinsbank* la villa Noailles de Robert Mallet-Stevens (1924), la villa Savoye de Le Corbusier (1929), et la Maison de Verre de Pierre Chareau (1928 - 1932).

En introduction, deux exemples significatifs présenteront la démarche de deux décorateurs ensembliers et créateurs de mobilier : Eileen Gray et Pierre Chareau.

Eileen Gray s'installe à Paris en 1907 après ses études à la "Slade School", de Londres. Dès 1913, elle se fait remarquer par ses premiers travaux sur paravents en laque. Elle crée pour le couturier Jacques Doucet dont elle devient le décorateur attitré, un grand nombre de sièges tables et objets. Plus tard Eileen Gray deviendra exceptionnellement architecte, grâce a l'appui technique de son ami et architecte Sean Badovici, pour construire deux villas sur la Côte d'Azur : "E 1027" et "Tempe a Pailla". Entre 1927 er 1930 elle conçoit pour ces deux villas un mobilier en tube d'acier inspiré de Marcel Breuer et le célèbre fauteuil "Bibendum"

Pierre Chareau, après avoir commencé en 1914 ses études à l'Ecole Nationale Supérieure des Beaux Arts à Paris entra comme dessinateur chez *Waring and Gillow* créateurs de mobilier anglais à pans où il prendra rapidement un rôle plus important. En 1922, il expose au Salon International des Artistes Décorateurs et il travaille dès 1923 avec Robert Mallet-Stevens pour le célèbre film de Marcel l'Herbier : "L'inhumaine". Il s'installe en 1924 avec Louis Dalbet, artiste forgeron avec lequel il ouvre une boutique à Paris. C'est avec lui et avec l'architecte hollandais Bernard Bijvoet qu'il entreprendra en 1928 les travaux de la maison de verre du docteur Dalsace, à Paris.

La précision, l'efficacité du détail, l'harmonie, l'unité qui caractérisent ces productions architecturales ne seront égalées que par l'ensemble hôtelier "Latitude 43" de Georges Henri Pingusson en 1931 où l'architecte voulut créer une sorte de phalansphère que son utilisation commerciale a peu à peu défiguré : hôtel, casino, restaurant et installations sportives. Pour ce lieu de rencontre destiné aux artistes, l'architecte dessina le mobilier, la vaisselle, le papier à lettre...

Dans la France des années 1920, les architectes modernes ont pour clientèle une nouvelle bourgeoisie à laquelle appartiennent peintres, sculpteurs ou musiciens, dans un climat de jazz, tango, charleston et cinéma parlant.

Perret, Lurçat, Le Corbusier, Mallet-Stevens vont expérimenter sur des programmes plus ou moins modestes, des possibilités esthétiques et spatiales nouvelles grâce à la mise en oeuvre de principes de construction différents résultant de l'emploi du béton armé.

Une production parisienne

C'est à Paris, en région parisienne, et dans une moindre mesure sur la côte d'Azur que s'expriment ces créateurs.

* A` Boulogne sous l'impulsion d'André Morizet, maire, qui confie la construction de son Hôtel de Ville à Tony Garnier, sont édifiés dans de nouveaux quartiers près du bois de Boulogne, de vastes hôtels particuliers.

Pierre Patout en 1928, alors qu'il oeuvre avec le peintre Lombard sur le chantier du paquebot "Ile de France" conçoit pour ce dernier un atelier-villa en forme de proue de bâteau.

A proximité dans la rue Denfert-Rochereau, sont construites entre 1926 et 1927, trois villas contigues qui exprimeront l'unité du nouveau langage architectural et l'existence d'un mouvement d'architecture moderne : la villa Collinet de Robert Mallet-Stevens, aujourd'hui restaurée, caractérisée par la présence de la grande verticale de l'escalier ; la villa Cook[3], de Le Corbusier, construite sur pilotis pour un américain amateur de peinture : et enfin la villa de Raymond Ficher dont les vastes volumes intérieurs étaient à l'origine aménagés avec des meubles de Leleu et des tapis de Da Silva Brunhs, et connue pour les sculptures de Lipscnitz qui ornaient le jardin contemporain de la construction.

* A` Boulogne encore, dans la rue du Belvédère, succèdent aux maisons presque jumelles d'Auguste Perret pour Marguerite Huré, peintre-verrier et Dora Gordin sculpteur, construites entre 1928 et 1929 dans le style de l'architecte, marqué par la présence de la grande corniche classique, la maison du sculpteur Foriep de Salis (1927)[4], d'André Lurçat et la maison Godefroy (1928), de Raymond Ficher.

Tandis que l'atelier Hure, profondément modifié par la division de la grande baie de l'atelier pour la création d'un étage supplémentaire dans le volume d'origine semble aujourd'hui bien défiguré, les autres constructions ont été progressivement restaurées. Avec le plus grand soin ont été conservées ou copiées les huisseries métalliques aux profils très fins et les touches de couleur, employées dans la villa Godefroy, dont la façade arrondie épouse la courbe d'extrémité de la rue : rouge pour l'auvent de l'escalier et vert pour les huisseries.

* Paris, dans une impasse du quatorzième arrondissement, la "Villa Seurat" une série de sept maisons-ateliers pour artistes seront construites par André Lurçat entre 1926 et 1927 avec un mode de construction économique. On y trouve en particulier les ateliers d'Arnold Huggier et de Grommaire et Goerg, amis de Jean Lurçat. Auguste Perret y conçut en 1926 l'atelier de Chana Orloff, selon le principe de construction qu'il utilisait au même moment dans les ateliers de Boulogne.

* A Versailles, dans un quartier de maisons hétéroclites de la petit bourgeoisie où Lurçat et Perret ont travaillé en même temps entre 1924 et 1926 pour construire trois maisons.

A` partir de 1925, c'est à travers ces maisons privées qu'André Lurçat entame son oeuvre d'architecte : les deux villas de Versailles, la villa Bomsel et la villa Michel expriment par leur conception simple et toute leur rigueur les nouveaux principes architecturaux. Les facades plates inscrites dans un rectangle sont peu percées et animées de formes geométriques régulières.

La Villa Bomsel présente sur rue un *DOW-WINDOW* semi-cylindrique. L'entrée y est marquée par un petit balcon sumonté d'un auvent. Sur le jardin, la façade[5] percée de longues fenêtres horizontales est marquée par un avant-corps en saillie. La terrasse en quart de cercle donne accès sur le jardin dessiné comme un tapis avec une grande précision.

Après onze années consacrées à la réalisation d'oeuvres majeures, c'est un retour à la maison individuelle pour Auguste Perret lorsqu'il construit pour le peintre mondain Cassandre (Adolphe Jean-Marie Mouron) une maison-atelier à Versailles. Cassandre[5] illustre bien cette bougeoisie cisée et progressiste qui souhaite montrer son goût résolument nouveau pour l'architecture moderne.

La maison Cassandre est la marque de l'engagement de Perret : c'est le compromis avec la tradition classique qui caractérise son oeuvre mais avec plus de retenue qu'il ne le fera par la suite. Chaque façade est composée sur un axe de symétrie. La distribution spatiale est claire, sa rationalité rappelle celle de Paul Guadet : ossature horizontale de béton armé, le poteau cher à Perret n'apparait pas, les poutres reposent sur les murs de façade.

La conception du plan libre se fait jour ici, davantage basée sur l'exploitation d'un système logique que sur l'indépendance complète de la partition de l'espace vis-à vis de l'ossature. Cet édifice justifie que l'on ait pu l'apparenter aux expériences de l'avant-garde par les jeux des volumes intérieurs libérés grâce au système constructif. On n'y relève aucune tentative de réinterprétation des ordres, et la corniche est réduite à une simple doucine en béton.

C'est à Paris, en 1926 et 1927 que Robert Mallet-Stevens édifie les ateliers de la Rue Mallet-Stevens, tenus pour être le chef-d'oeuvre de l'architecte. Gabriel Guévrékian est chef d'agence pour ce projet qui comporte six maisons-ateliers. Il fait appel à de nombreux artisans pour la décoration, en particulier au maître-verrier Barillet et aux sculpteurs Jan et Joël Martel avec qui il travaille régulièrement. Dans l'Atelier des frères Martel, Mallet-Stevens fait entrer les arts dès la phase de conception afin de ne pas rompre la volumétrie intérieure.

La maison Martel est la seule à présenter extérieurement un ensemble de volumes éclatés à la géométrie simple : un cylindre, des sections de cylindre, des cubes, une oblique. Ce traitement des volumes est à rapprocher de la passion de l'architecte pour le montage cinématographique. Ici il réaménage le plan-libre en créant dans les intérieurs des différences de niveau qui permettent toutes les combinaisons de volumes. Le rez-de-chaussée est divisé en quatre niveaux. le cylindre de l'escalier y figure la découpe d'une vis traversant l'édifice.

En 1929, Robert Mallet-Stevens fondera l'Union des Artistes Modernes avec Pierre Chareau.

Quatre exemples de restauration

Immeuble 34, rue pasquier - A. et P. Fournier - 1921

L'immeuble situé à Paris dans un site chargé d'histoire, face à la Chapelle Expiatoire, sépulture de Louis XVI, se caractérise par les sculptures en pas-reliefs de Georges Laurent Saupique, auteur du décor du café du Dôme, et par ses structures internes à ossature métallique et remplissage de béton.

Construit après 1921 par les frères A. et P. Fournier, ingénieurs théoriciens de la résistance du fer dans la construction. L'édifice s'élève sur sept étages dont trois en retrait dans un haut comble.

Le décor de Georges Laurent Saupique couvre les travées pleines entre les travées percées de fenêtres de format carré. Cette façade a souvent été comparée à celle du Palais Permanent des Colonies (Musée National des Arts Africains et Océaniens) et a été proposée pour une inscription à l'Inventaire Supplémentaire des Monuments Historiques en 1980.

L'implantation de la *Bayerische Vereinsbank-France* dans l'édifice a permis de restituer aux deux façades leur harmonie et homogénéité par la suppression de vitrines qui les défiguraient, de créer un vaste espace d'accueil et de concevoir une nouvelle organisation intérieure plus conforme aux volumes d'origine.

Avant les travaux, l'édifice qui avait été maintes fois remanié et recloisonné par ses divers occupants ne comptait plus aucun élément intérieur d'origine à l'exception d'un ascenseur et de portes palières en métal. Vide de ses cloisonnements anarchiques, il a été entièrement retraité par Dominique Averland, designer, P. Saunier, architecte, et Christiane Schmuckle-Mollard, architecte en chef des Monuments Historiques

Les poutrelles composées de l'ossature métallique qui sont portées par la façade et le mur amère, distant de sept mètres, offraient une grande liberté pour les cloisonnements légers intérieurs. Au cours des travaux, la structure métallique a pu être étudiée, vérifiée et consolidée. Au rez-de-chaussée, les volumes d'origine ont été retrouvés et les murs ont été enduits de stuc-marbre de tonalité ocre.

Le mobilier créé pour *BV France* par Dominique Averland et Christiane Schmuckle-Mollard a été diffusé par la société EKLAIR dans sa collection OFFICE.

Ici l'édifice a été retraité de manière contemporaine mais en repectant fidèlement son caractère.

La villa Noailles à hyères - Robert Mallet-Stevens - 1924 - 1928

La maison construite en 1924 par R. Mallet-Stevens[8] était relativement modeste. Agrandie d'année en année jusqu'en 1928, elle devint une sorte de village d'une superficie de près de 2 000 mètres carrés habitables. Gabriel Guévrékian participera largement à la conception de la première oeuvre d'André Lurçat et de ses jardins. Aux aménagements intérieurs collaboreront : Francis Joudain, Pierre Chareau, Djo Bourgeois (élève de Mallet), Van Doesbourg, Van Ravensteyn. Robert Mallet-Stevens y conçut certains meubles, en particulier de jardin en toile et tube laqué vert. Plus tard, Jean Michel Frank y aménagera quelques pièces.

La villa Noailles, habitée par la famille du Vicomte de Noailles jusqu'en 1970, a été acquise par la ville de Hyères qui l'abandonna après en avoir ouvert les jardins au public. Livrée au pillage elle sera sauvée en 1975 par une première mesure d'inscription à l'Inventaire Supplémentaire des Monuments Historiques, limitée aux extérieurs. Elle sera sujet d'étude et de diplôme pour Cécile Briolle, architecte aujoud'hui chargée de sa restauration avec Jacques Repiquet, également architecte, et auteurs des projets détaillés de travaux sur les bâtiments. Aucune utilisation définitive n'a été trouvée pour cet édifice.

Une première tranche de travaux de 6 millions de FF a permis de restaurer une partie des jardins, les extérieurs et environ un tiers de la surface intérieure (700 m^2). Les travaux ont permis la démolition de constructions parasites, la restauration des enduits extérieurs, des sols en terrazzolith, celle des menuiseries en bois ou en acier, la restauration des sanitaires anciens et des dalles de verre, du plafond du salon rose. A` l'extérieur, le jardin cubiste conçu par Gabriel Guévrékian a été restitué à partir des vestiges des jardinières disparues. Les mosaiques de pâte

de verre ont pu être refaites d'après les éléments retrouvés sur le site. La structure du bâtiment, les matériaux altérés, ont été régénérés avec des techniques de renforcement en béton armé. Les étanchéités défectueuses dès l'origine ont été entièrement reprises.

On peut regretter les changements résultant des mesures de sécurité prises pour l'ouverture de l'édifice à un large public : sens d'ouverture de certaines portes et remplacement des grandes vitres par des vitrages de verre feuilleté, ou encore transformation de la chaudière à bois, devenue électrique.

L'édifice et ses travaux de restauration ont fait l'objet d'une communication à Dessau lors de la deuxième rencontre internationale de DO. CO. MO. MO. par Cécile Briolle et Jacques Repiquet, chargés de diriger les travaux de restauration.

La "Maison De Verre" - Pierre Chareau - 1928 - 1932

La construction pour le docteur Dalsace d'un cabinet médical et d'une maison d'habitation s'effectua en deux temps : une première phase très complexe de reprises en sous-oeuvre exécutées sous la direction de l'architecte hollandais Bernard Bijvoet, et une seconde phase pour les aménagements intérieurs réalisés avec Louis Dalber, maître-forgeron.

Cette maison est située sous le dernier étage de ce qui était un hôtel particulier construit entre cour et jardin dans le 6ième arrondissement de Paris. L'ossature métallique permit cet exploit. Le métal et le verre seront employés pour toute la construction, la maçonnerie sera limitée au béton des planchers. Les élévations seront rendues translucides par l'emploi de pavés de verre. La lumière joue à travers cette matière pour pénétrer profondément dans l'édifice dont l'épaisseur est inhabituelle. Le rez-de-chaussée a été réservé au cabinet médical dont l'activité s'est poursuivie jusqu'en 1978. Un large escalier droit donne accès au séjour conçu sur une double hauteur.

Les détails de construction atteignent un degré de perfection jamais égalé. L'unité de matériau permit à Pierre Chareau de s'affranchir des conceptions séparées jusque-là entre l'architecture et son décor intérieur, il n'existe plus aucune frontière. Tout participe à la machine à habiter dont rêvent à cette époque les architectes, en particulier Le Corbusier qui visite régulièrement le chantier.

Entre 1932 et 1960 l'édifice était entretenu et ne nécessitait pas de travaux particuliers, à l'exception des façades constituées de bloc de 24 pavés de verre insérés dans un cadre métallique profilés en L. Les verres à base de sodium s'étaient opacifiés et les armatures-supports avaient rouillé. En 1960, les verres furent remplacés et il fut décidé de modifier les armatures. Les fers seront alors coupés et non devissés. Aujourd'hui les soudures des années 1960 et la modification des assemblages posent de grands problèmes. On compte 2 300 pavés dans l'édifice or les moules du modèle "Névada" de chez Saint-Gobain ont été détruits en 1976.

Avant les années 1980 de multiples microdésordres étaient apparus et, en 1979, une équipe de restaurateurs constituée d'un membre de la famille, Marc Velley, d'un architecte, Bernard Bauchet, et d'un artisan, Inego de Castro, établit un diagnostic et une méthode d'intervention pour résoudre les problèmes techniques posés par la façade sur jardin et l'éclairage artificiel, inadapté à la vie contemporaine dans la maison.

Des solutions ont pu être trouvées pour remplacer les joints d'étanchéité en cuir des chassis grâce à l'emploi de bandes de mousse comprimée. Toutefois les plus grandes difficultés sont liées aux travaux d'entretien et de restauration des façades en pavés de verre qui requièrent la mise en oeuvre d'une production spéciale, et à l'usure des sols collés réalisés en dalles caoutchouc à pastilles.

Le chauffage à air puisé et le renouvellement à air n'ont jamais cessé de fonctionner, et la vie continue dans la maison-musée dont la cuisine-laboratoire est aujourd'hui bien véruste !

La Villa Savoye - Le Corbusier - 1929

Si la villa Stein à Garches a valeur de manifeste en 1927, plus intéressante est la villa Savoye qui utilise comme elle le prisme parfait qui en inscrit le volume, les pilotis, le nombre d'or et les tracés régulateurs, les murs blancs, les profils métalliques noirs. Le détail y est moins important que l'ensemble. Ici, la boîte éclate, les volumes sont conçus dans le mouvement dynamique de la visite, comme un *travelling* de cinéma. La villa Savoye avait été construite sur un site vierge, sur un vaste terrain entouré de grands pâturages. Sous les pilotis, la grande courbe du rez-de-chaussée permet aux voitures l'accès du garage. Après avoir laissé sa voiture le propriétaire gravissait la longue rampe d'accès vers les pièces de séjour et l'immense terrasse intérieure, sorte de jardin suspendu traité avec de larges vues sur la nature environnante. Paradoxalement, alors que les intérieurs témoignent de la démarche d'esthète de Le Corbusier, la villa Savoye témoigne du peu de soins qu'il accorde aux problèmes techniques. Très rapidement les terrasses présenteront de nombreuses fuites.

Après la guerre, la villa sera transformée en maison de jeunes et entourée des bâtiments d'un lycée et de terrains de sport. Elle se dégrada tellement rapidement que la municipalité, propriétaire en décida la démolition. Elle ne sera sauvée que grâce à l'intervention d'André Malraux, Ministre de la Culture, qui signa un arrêté de classement en 1965. Restaurée une première fois sous Malraux, la villa vient d'être l'objet d'une grande campagne de travaux extérieurs. En 1965, de crainte qu'il n'y apporte des modifications les travaux de restauration ne seront pas confiés à Le Corbusier.

Le Ministère de la Culture entretient et restaure régulièrement cet édifice non utilisé mais ouvert à la visite. Quelques meubles créés à partir de 1929 avec Chariotte Perriand y sont aujourd'hui présentés.

Dès 1923, Le Corbusier avait employé le système de construction sur pilotis dans les villas jumelles La Roche et Jeanneret à Paris, tout comme l'emploie de tracés régulateurs pour les façades, et le recours à la couleur à l'intérieur : rose, vert anglais, terre de sienne, terre d'ombre; tonalités que l'on retrouve à la villa Savoye. Les théories de Charles-Edouard Jeanneret sur la polychromie architecturale étaient connues par ses articles publiés dans la "Revue de l'esprit Nouveau" fondée avec le peintre A. Ozenfant.

Le cycle des villas s'achèvera pour Le Corbusier avec ce chef-d'oeuvre construit avec beaucoup de difficultés et un budget qui aura doublé entre le début et la fin du chantier. En 1930, Le Corbusier publiera le premier projet de cité pour Alger. Il marque ainsi un tournant dans sa production.

Notes

1. Convient de rappeler ici qu'en 1907 avait été créée La Société des Artistes Décorateurs et qu'en 1912 le Salon d'Automne s 'ouvrait à l'architecture.

2. La maison-atelier au peintre Amedée Ozenfant avec qui Charles Edouard Jeanneret rédigea le manifeste "Apres le cubisme" (1918) fait directement référence au Bauhaus : la grande verrière retournée sur l'angle est celle de l'usine FAGUS construite par W Cropius et A Meyer en 1911

3. Ici sont appliquées très clairement les certitudes acquises jusqu'ici, les pilotis, le toit jardin, le plan libre, la façade libre, la fenêtre en longueur latéralement. Le tracé régulateur est ici un tracé automatique fourni par les simples éléments architecturaux à l'échelle humaine tels que la hauteur des étages, les dimensions des fenêtres, des portes et des balustrades. Le plan classique est renversé : le dessous de la maison est libre. La réception est au sommet de la maison. On sort directement sur le toit d'où dominent les vastes futaies du bois de Boulogne; on n'est plus à Paris, on est comme à la campagne (Le Corbusier)

4. Il ne faut pas manquer de noter l'ingéniosité d'André Lurçat qui aménage sur une parcelle très petite le volume de l'atelier placé sur la rue, bordé par la pergola sur le mitoyen qui donne accès au jardin et aux pièces d'habitation.

5. En 1933 la façade sur le jardin sera sélectionnée pour illustrer l'architecture contemporaine dans "Arts des origines à nos jours" publié chez Larousse sous la direction de léon Deshais, directeur de Ecole Nationale Supérieure des Beaux-Arts.

6. Le peintre est plus connu pour ses affiches que pour son apport théorique et il n'aura pas sur Perret influence comparable à celle du peintre Ozenfant sur Le Corbusier.

7. Ses dernières oeuvres connues seront en 1932 la villa Cavrois à Croix près de Roubais, qu' il conçoit comme le pendant du palais Stociet et en 1937 ses pavillons pour l'exposition universelle.

8. En juin 1923 après le refus de Mies van der Rohe et de Le Corbusier, le vicomte Charles de Noailles du Musée des Arts Décoratifs avait chargé l'architecte des travaux pour sa villa moderne à Hyères.

RESTORATION, CONSERVATION, REHABILITATION, REUSE

Diocletian's Palace in Split : rehabilitation and reuse through the centuries

Tomislav Marasović

The palace of the Roman Emperor Diocletian. which is the first urban nucleus of the Dalmatian city of Split. is generally considered one of the most valuable historical sites of the Republic of Croatia. In 1979 it was officially listed as a World Heritage site, and since 1985 it has also been on the list of "100 Mediterranean historic sites of common interest"[1] There is strong historical evidence that the construction of the place was begun soon after Diocletian established the famous "tetrarchy" (Constantius Chlorus in the west and Galerius with himself in the east).

Following his own political programme Diocletion left Nicomedia in 293 AD and "went to his homeland" (as it was recorded by a contemporary historical source)[2] Since the idea of abdication was closely connected with his political re-organization of the Empire and with the establishment of a system of two emperors and two successors, it is reasonable to assume that about the year 295 A. D. he would have ordered construction to begin of the residence where he planned to spend the last years of his life. That is why in 1995 the city of Split officially initiated the celebration of the 1700th anniversary of the ten years which it took to complete the construction of the palace (295-305/1995-2005).[3]

The importance of Diocletian's palace in Split for architectural history and conservation is multifold.[4] Here I would like to present it as an outstanding example of *reuse and rehabilitation* exemplifying past and present day conservation theory and practice.

From Emperor's Residence to Early Medieval Town

Diocletian's original building was rectangular on plan with towers projecting from the western, northern and eastern facades. It combined the qualities of a luxurious villa with those of a fortified castle. Only the southern facade, which rose almost directly from the sea, was unfortified. The elaborate architectural composition on its upper floor differed from the more severe treatment of the three facades facing landward. The dual nature of the architectural scheme, derived from both *villa* and *castrum,* was also evident in the layout of the interior. The transverse street (*decumanus*), linking the east and the west gates, divided the complex into two halves. In the southern half were the more luxurious structures, that is the emperor's apartments and cult buildings. The emperor's apartments formed a block along the sea front. A monumental peristylar court formed the northern access to the residential block. It also gave access to the emperor's Mausoleum (Temple of Jupiter) and three smaller temples to the west.

After Diocletian's death (316) the palace remained an imperial possession and was probably used by members of the imperial families[5]

The first and most important reuse of the site was in the 7th century when the imperial *residence* was transformed into an early medieval *town*[6] The original function at that moment was more than three centuries out of date, and the need for a town became very urgent after the Avars and Slavs destroyed *Salona*, Diocletian's presumed birth place, the main city of the roman province of Dalmatia and an important Christian metropolitan centre of the eastern Adriatic. There were refugees from Salona, headed, according to the medieval writer Thomas the Archdeacon[7], by a distinguished Salonitan citizen.

Severus the Great, who transformed the Roman palace in to a real town to achieve urban continuity by replacing the destroyed town. The main legal connection between the new established town of Split and the destroyed Salona was particularly evident in the efforts made to ensure ecclesiastical continuity from the glorious Salonitan church to the new Split diocese. These efforts may be credited to the archbishop John of Ravenna, the organizer of the Split church in the middle of the 7th century.'[8]

Three main aspects of the transformation of the palace into a real town can be recognized:

1. Adaptation of existing buildings and areas of the palace to new urban functions (walls, gates, streets, peristyle as a city square, Roman temples and sentries' corridors as proto-Romanesque churches, towers as aristocratic residences, basement halls as temporary residences for refugees).

2. New buildings within the existing fabric of the palace were mostly erected for residential purposes. In more than ten different places remains of proto-Romanesque houses were discovered, indicating a new layout of streets and dwelling blocks which basically followed the previous arrangements.

3. Extension of the town outside the palace by the gradual expansion of the early medieval west suburbs. At the same time a considerable number of proto-Romanesque churches were erected in the outskirts.

From a Multifunctional Medieval Town to a Residential Area with Predominantly Ecclesiastical Function

The next transformation of Diocletian's Palace was related to changes in the function of the centre. together with the territorial growth of the town of Split'[9]

Fig. 1. Early medieval town within Diocletian's palace (J. Marasović)

Becoming at the beginning of the 12th century a self-governing commune directly under the Hungaro-Croatian kings the town in the palace began its rapid economic and territorial growth. The transformation of the Emperor's residence, begun in the early middle ages, had by now been completed. The western expansion continued with the building of new residential areas, an addition to the original town within the palace, but in the early part of the 12th and the 13th centuries, always considered as suburbs, fortified by dry walls.

At that time the peristylar court situated as it was in front of the cathedral, developed into a civil and religious centre. On the west side, facing the cathedral, a town hall was built, the loggia of which still exists today.

The main structural changes occurred in the 14th century, when the western suburb was integrated into the urban area and called "new town" to distingush it from the "old town" within the palace. As a consequence, the transverse axis of the integrated town became the main means of communication and, on the same axis in the western part of the town the municipal centre found its new seat in St. Laurence Square. In the old peristylar square only the ecclesiastical functions remained so that from the 14th century onwards Split changed from its original structure of a monocentric city to a bicentric one.

As a result of these changes a new northern entrance to the town was established, causing the decline of the original longitudinal axis of communication within Diocletian's Palace. This tendency leads later to a general decline of the first urban nucleus.

Diocletian's Palace within the Fortified Town from the 15th to the 18th Century

The Venetian conquest of Split in 1420, put an end to the

Fig. 2. Split at the end of the 14th century (J. Marasović). Medieval extension of the first nucleus in Diocletian's Palace.

Fig. 3. Emperor's Mausoleum in the reuse of the Split Cathedral from the early Middle Ages. (Z. Buljević)

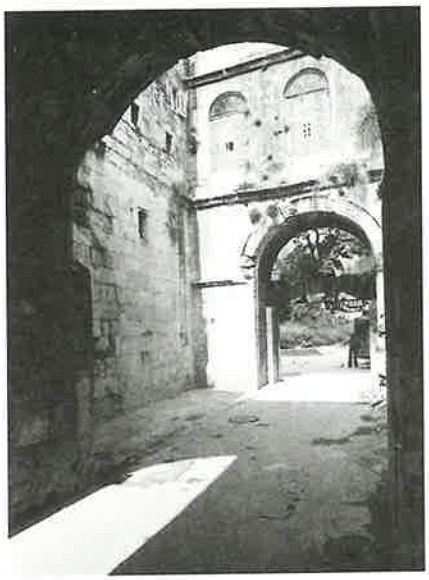

Fig. 4. Roman Northern Gate in the early medieval reuse as the St. Martin Church. (Z. Buljević)

Fig. 5. Roman Western Gate in the early medieval reuse as the S. Theodore Church. (Z. Buljević)

free commune, and Diocletian's Palace became part of a strongly fortified town. The first Venetian fort was built in 1435 near the south-western corner of the palace both to defend the city and for the safety of the town garrison. With the threat from the Turks in the 16th and the 17th centuries three fortification systems were erected, encircling the whole area of the town on the land side. The last one, built in the middle of the 17th century during the worst conflicts with the

Fig. 6. Split within the 17th century fortifications. (J. Marasović)

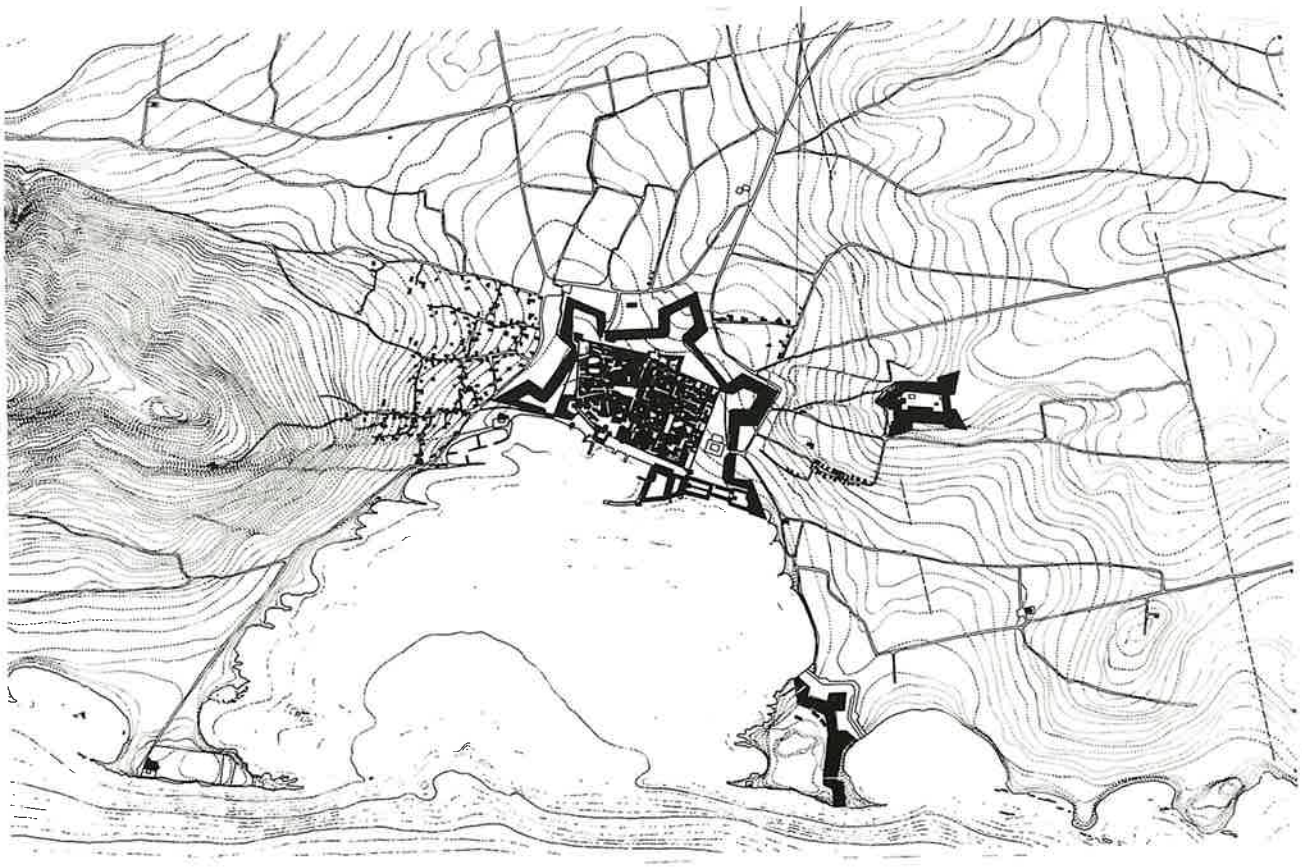

Fig. 7. Western side of roman Peristyle, an example of reuse throughout centuries.

Fig. 8. Roman Venus temple and the Romanesque Municipal Loggia.

Fig. 9. South eastern tower of the Diocletion's Palace, transformed into the medieval Archbishopric and in contemporary reuse as a conference hall. (Z. Buljević)

Turks, encircled all the town with strong walls, fortified by pentagonal bastions which survive in part.

Diocletian's Palace, as the oldest urban core, continued to have the role of ecclesiastical centre, the seat of the most important metropolitan church in Croatia, covering all the eastern Adriatic.

Though new houses, palaces and churches. were built during that period in the Renaissance and Baroque styles, the urban fabric kept the former medieval structure. The maintenance of the town assured the coexistence not only of different architectural and historic layers, but also of different social strata within the walled area. In the outskirts lived a predominantly agricultural and fishing population, while within the walled town the aristocracy, tradesmen and craftsmen continuously maintained the houses, shops and basic living activities. Social balance was one of the factors which enabled constant maintenance of the palace area.

Owing to the ever-increasing interest in Diocletian's Palace of travellers, architects and artists, there is a rich documentation of the area from the 16th to the end of the 18th century. The most important was the expedition, undertaken by the British architect Robert Adam, who organized the recording and research work which resulted in the monograph published in 1764[10]. Less than 20 years later (1782) the French painter L. F. Cassas set about recording the state of the palace in a series of watercolors and engravings published in 1802.[11]

Degradation in the 19th and in the First Half of the 20th Century.

Early in the 19th century there was a short period of French rule in Split (1806-1813). It is remembered for a number of developments, the most important of which was the destruction of many of the old defensive walls, made unnecessary by the new methods of warfare. Almost immediately the Venetian fort was pulled down, as well as some bastions on the west side of the city. Thus for the first time the compact nucleus of Split was opened to the newer suburbs, starting at the same time the process of expansion outside the historical centre.

This process continued during the Austrian administration (1813-1918) and even between two world wars (1918-1941) though for most of this time the newly established organisation for the protection of monuments was developing its own methods, based on conservation theory and practice in other European Countries.

The spread of Split outside the historical walls, in the nineteenth century, the result of rapid economic development connected to the expanding role of the harbor and other industrial developments, caused the richer population to leave Diocletian's Palace and the old centre. As a consequence. a considerable change in the social structure occurred. The area began to be inhabited predominantly by the poor population, mostly from the hinterland which, not used to a higher living standard, has not been able to maintain its

Fig. 10. Western tower of Diocletian's palace in contemporary use as the lecture hall of the Mediterranean centre of built heritage. (J. Marasović)

dwellings and other premises.

As a result of these changes Diocletian's Palace. though recognized as an outstanding monument of world importance, became a totally degraded area with many dilapidated houses, some of which collapsed and many of which remained in permanent danger of collapse. In most of the houses and flats (over 90 percent) conditions became very poor, with some 75 percent of more than 3000 inhabitants living in damp conditions and the density of population (1.73 families or 6.15 persons per apartment) significantly below normal living conditions.

The degradation of Diocletian's Palace was evident also in the disproportionately large number of storage areas and premises, most of them completely neglected and, in the pedestrian traffic conditions, showing the overloading of some lines of communication and the decline in the use of others.

Rehabilitation Process in the Last 40 Years

Systematic rehabilitation of Diocletian's Palace begun 40 years ago when the Town Planning Institute of Dalmatia founded a special department for built heritage to be able to include conservation work in the physical planning process.

The action started in the period when in most European countries a new conservation concept of "active conservation" was emerging within the framework of an "integrated preservation approach".

Rehabilitation of the palace in the sixth decade of this century coincided with the new concept at the time, of safeguarding not just a single monument, but a wider area and the monument in its setting. The new concept, moreover, implied not only the conservation of historical and artistic values of old buildings, but also the solving of more complex hygienic, socioeconomic, environmental, traffic, public services and other problems. The rehabilitation process is mainly to do with solving hard housing problems concerning the living conditions of the inhabitants of historical areas.

Starting within such a conceptual framework, the institutions involved in the rehabilitation process (the Town

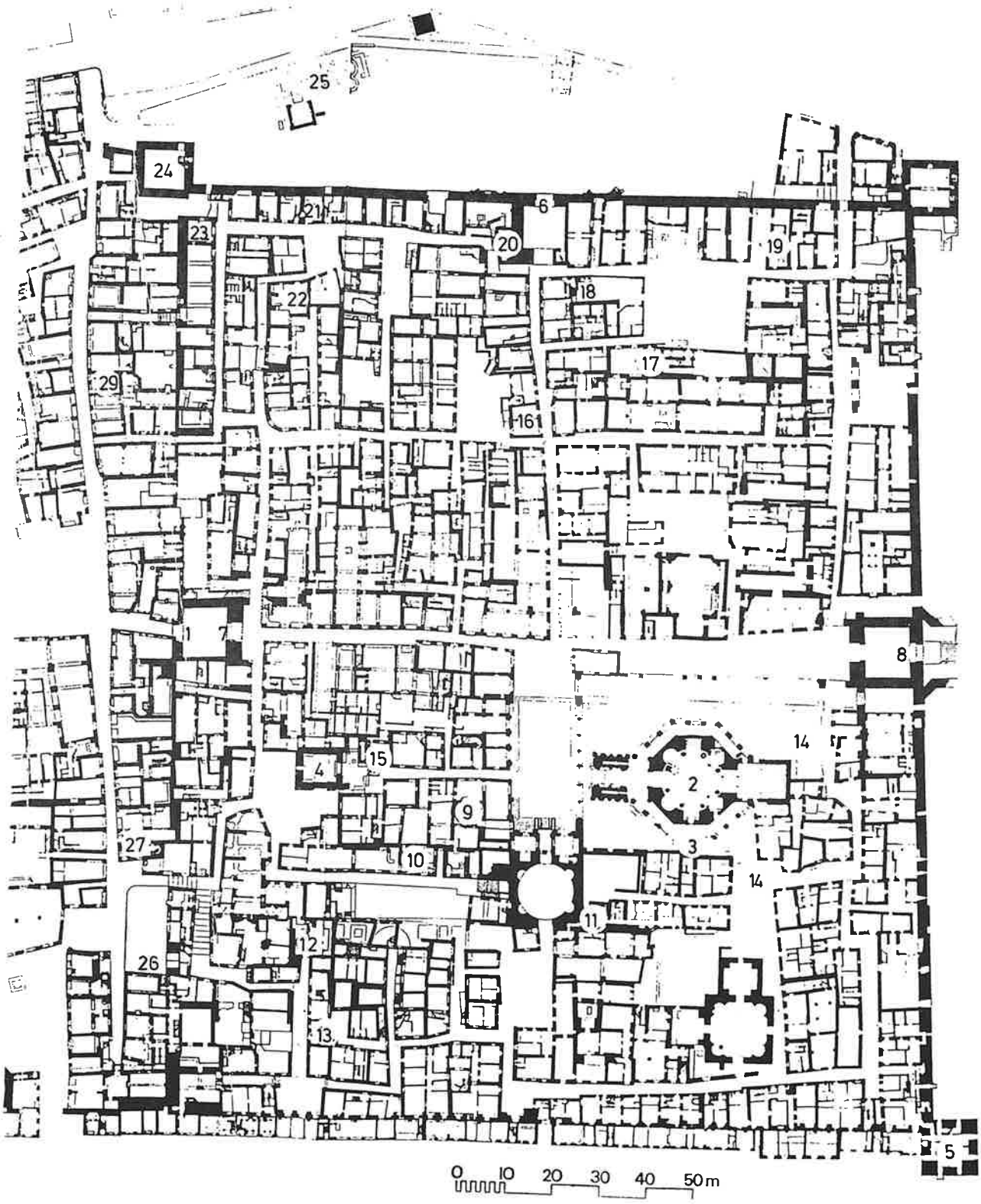

Fig. 11. Diocletian's Palace in its actual reuse as the historical nucleus of Split

Planning Institute, the Institute for the Protection of Cultural Monuments, and in the later phase also the Mediterranean Centre for Built Heritage of the University of Split) have jointly implemented a methodology based on a detailed architectural survey and analysis of the present state of the whole of the historical nucleus of Split. This was followed by a study of the development of the historical centre and of individual buildings. as a prerequisite of the evaluation revealing the causes of deterioration. It was also a necessary basis for the plans and projects, including the detailed plan for all area within the historical walls of Split.

The implementation of rehabilitation plans and projects resulted in three main actions:

1. Excavation of the unknown parts of Diocletian's Palace and buildings of later historical periods, organized partly in collaboration with the University of Minnesota within the joint American research programme;

2. restoration and revitalization of the main longitudinal axis of communication in the palace as a prerequisite for the economic revival of the degraded area along the main Roman street;

3. adaptation of dilapidated houses for new purposes. including the construction and restoration of dwellings to contemporary living standards. Reusing historical buildings, new uses being accepted only if they correspond to the original architectural, environmental and technical characteristics.

The integrated plan for the rehabilitation of Diocletian's Palace is based on the economic potential of the historical area, which itself can provide necessary financial sources for the implementation of restoration work, based on the income from business premises and other sources.

Having in mind the importance of Diocletian's Palace and its actual condition, the Lions Club Split has recently initiated the creation of a foundation with the aim of raising funds which will be used as an additional financial source for the rehabilitation process in that area.

Notes

1. 100 sites historiques d'interet commun Mediterranéen. Marseille, 1989, list, p. 22
2. According to the Christian writer Lactantius: De mortibus presecutorum.
3. T. Marasović: Diocletian's Palace - the World Cultural Heritage, Split - Croatia, Zagreb, 1955
4. For basic literature on the Diocletian's Palace cf. two basic editions from the beginning of the century: G, Niemann, Der palast Diokletians in Spalato, Wien, 1910; E. Hebrard - J. Zeiller, Spalato, Le Palais de Diocletien, Paris, 1910. For most recent results in the research of the site, cf.: J. Marasović - T. Marasović, Diocletian's Palace, Zagreb, 1968; T. Marasović: Diocletian's Palace in Split, the World Cultural Heritage, Split, Croatia, Zagreb, 1995; J. J. Wilkes: Diocletian's Palace, Split, residence of a Retired Emperor, Sheffield, 1986; S. McNally: Introduction. State of Scholarship, Diocletian's Palace, Minneapolis, 1989.
5. For the historical development of the palace in Split, cf.: T. Marasovic: Kronologifa proučavanja, očuvanja i uredenja Dioklecijanove palače, Katalog izložbe: Dioklecijanova palača, Split, 1994, p.29-62.
6. T. Marasović : Prilog istraživanju transformacije antičke jezgre u ranosrednjovjekovni grad, Gunjačin zbornik, Zagreb, 1980, p. 99 ss
7. T. Arhidakon: Historia Salonitana (Kronika),. ed. Rismondo, Split, 1977.
8. Ibid
9. G. Novak: Povijest Splita, I. Split. 1957.
10. R. Adam: Ruins of the palace of the Emperor Diocletian at Spalatro in Dalmatia, London. 1964
11. Voyage pittoresque et historique de l'Istrie et de la Dalmatie d'apres I' Itineraire de L. F. Cassas par Joseph Lavallee, Paris. 1802
12. T. Marasović : Zaštita graditeljskog nasljeda, povijesni pregled s izborom tekstova i dokumenata, Zagreb-Split, 1983
13. T. Marasovic: Methodological proceedings for the protection and revitalization of historic sites (Experiences of Split) ICCROM, Rome, 1975

SOS Bahia

Maria Beltrão

1. Introduction

The archaeological Region of Central, covering 270,000 square kilometers (105, 000 square miles) of the State of Bahia, has its epicenter in the municipality of Central (at the center of the local caatinga[1] zone). Since 1982, under the author's coordination, the Region has yielded finds in three main groups;

a) artefacts from the Toca da Esperanoa cave dated as at least 300.000 years old, strongly suggesting that *Homo erectus* inhabited America;

b) Pleistocene animals represented in paintings, especially in "canyons" (valleys with sheer walls);

c) geometric figures - in an Astronomical Traditon which appears to be the oldest anywhere in the three Americas - sometimes associated with depictions of pleistocene fauna;

d) human remains of "Lagoa Santa Man", previously encountered only in the Lagoa Santa Archaeological Region, now found 1,000 kilometers (825 miles) to the north, in the Region of Central;

e) material remains from the historical period, in the form of rock paintings representing situations from the two ecomonic activities predominant in the region: cattle farming in the High Sertão of the western Chapada Diamantina and mining in the central portion of the Chapada.

This unique set of finds, described in greater detail below is threatened with destruction, less by man than by natural forces.

2. The Finds

a) The Presence of Homo Erectus in Brazil

On the basis of a geologiocal study made 15 years ago, we drew attention to the need for research in Brazil's Northeast, especially the Middle São Francisco, where there is most evidence of Quaternary climatic fluctuations.

"Project Central" was installed in the region in 1982, at which time the author located, along with other sites, the Toca da Esperança cave in the municipal district of Central (Bahia) in the Serra de Pedra Calcária mountains.

Exploratory studies in 1985 and excavations in 1986 revealed a stratigraphic sequence of four layers whose characteristics suggested climatic alternations. Layer I, corresponding to a less humid climate than the underlying layer, is marl containing fossilized gastropods; layer II, a humid climate with a regime of heavy rains, is concreted and contains fossilized mammal bones; layer III, a dry climate, is silt containing mammal fossils; layer IV, a damp climate, is laterite and contains bones of large mammals.

In articles published in Brazil by the Brazilian Academy of Science and others, we mentioned the confirmed presence, in layer IV, of stone circles (hearths?) and evidence of an apparent dietary preference for equines and marrow. The

bones were fractured violently on the diaphyses close to the epiphyses and probably used as scrapers, as in the case of one *Eremotherium* bone. We also found a quartzite flake produced by violent percussion, while the nearest source of quartzite is several kilometers away and the cave stands 37 meters above the level of the surrounding plain.

Also in 1986, bones of pleistocene fauna found in the layers at the cave were forwarded to the Institute de Paleontologie Humaine in Paris for dating. The oldest bones were initially dated by the uranium-thorium method at around 300,000 years old. From this point on, the author began to admit the presence of *homo erectus* in America.

During subsequent more precise datings the staff of the Institute, headed by H. de Lumley expressed an interest in visiting Brazil to verify the author's findings. In order that members of this team could participate in field work, a Franco Brazilian programme, to be coordinated by the author, was submitted to the Science and Technology Development Council of Brazil.

The pleistocene bones found in layers II and IV yielded ages of between $204{,}000 \pm \frac{34{,}000}{26{,}000}$ and $295{,}000 \pm \frac{780{,}000}{80{,}000}$ in datings performed at three laboratories: Gif-sur-Yvette (France), Los Angeles and Menlo Park (USA).

Layer IV also produced a chopper, as well as quartz and quartzite chips with steep, invasive retouching. A clactonian type flake and the chopper underwent traceological (use-wear) study in Paris.

Layer I was dated at 22,000+ 500 (Gif), while carbon in very fine gray powder sediments covering this layer was dated by C^{14} at between 1,000 and 8,500 BP (Beta Analytic Inc. and Gif).

The animal remains mentioned, found in association with artefacts, were described provisionally and again, more precisely, in 1989. This pleistocene fauna relates to layers II, III and IV, and includes the following species: *+Eremotherium laurillardii, +Pampatherium humboldti, +Propaopus sulcatus, +Hippidion principale, +Paleolana major + Panochtus sp., + Smilodon populator populator* and two families, cricetidae and cavidae (Beltrao and Locks, 1989)

It is worth stressing that the overwhelming majority are not carnivore bones.

The substantial results obtained by the Franco-Brazilian team were presented at congresses in Europe and published, among others, by the French Academy of Science.

Also, datings obtained at the Toca da Esperança cave (a minimum of 300.000 years for layer IV), corresponding to the Middle Pleistocene, lie within the same chronological range as several skeletal remains of *homo erectus* found in the "Old World"

So far, only cultural remains (artefacts) have been found in Brazil. The absence of human bones may be explained by the small area - 16 square meters - excavated at the Toca da Esperanca site. Incidentally, in the search for *homo erectus* bone remains we are also excavating limestone depressions where pleistocene animals which entered seeking water would have been unable to escape, making them easy prey. We feel that parts of human skeletons are more likely to be found in these depressions where man hunted and occasionally died. Since they were not used for human habitation, the dead would not have had to be removed.

b) Rock Paintings of Pleistocene Animals

In the region of Central are to be found thousands of rock paintings executed by *homo sapiens sapiens* in canyons in precambrian quartzite rock or in limestone caves and rockshelters in the Salitre and Caatinga formations.

One of the paintings on quartzite which first caught our attention - a group of hunters confronting a large animal was executed in red on the right-hand wall of a small canyon. The animal was identified as a *+Toxodon platensis;* Owen, 1940, a herbivorous pleistocene animal which became extinct about 11,000 years ago. Distinctive features of this animal are present in the painting in the head (amphibious lines: nose, eyes and ears in line) and the volume of its body compared with those of the accompanying anthropomorphs. Is the Toxodon represented here with deer's legs? This kind of transpositon of characteristics from one animal to another is encountered frequently in the Region. There are *rhea* heads and feet on anthropomorphs, and deer horns, feet and legs on rheas. The anthropomorphs confronting the Toxodon are shown with three fingers and three toes: do these represent rhea digits? At the Toca Lagoa da Velha and Toca das Corças sites in Morro do Chapéu there are many examples of images of this kind associating deer and rhea (or rather, mammal and bird) and switching characteristics from one animal to another.

The deer portrayed at the above sites is *Blastocerus dichotomus* (Marsh Deer) an extant animal which, to survive, needs moisture, water (rivers, lagoons, etc.) and vegetation, like thickets and forests. As these conditions do not pertain today (present vegetation is caatinga) we believe that the deer inhabited the area at a time when the climate was damper and the countryside possibly savanna with patches

of forest and, thus, a soil richer in water. Could the images of the Marsh deer (associated with rheas) at the Toca da Lagoa da Velha and Toca das Corças sites be pleistocene like that of the Toxodon? *Blastocerus* is incompatible with caatinga vegetation which, according to Ab'Saber (1977), already existed in the region approximately 18,000 years ago. Both are damp climate animals and so need a lot of moisture to survive.

Other animals portrayed, like + *Arctodus (Pararctotherium) brasiliense* (Lund, 1841) and +*Palaeolama major* (Liais, 1972) are cold climate, pleistocene animals.

Several other pleistocene animals appear in the paintings, such as +*Hippidion principale* (Lund, 1841) which, like the shortfaced bear and the *Palaeolama,* lived in mountain habitats, and +*Scelidotherium (Catonyx) cuvieri* (Lund, 1841), +*Gliptodonte clayipes* (Burmeister, 1879) and +*Equus (Amerhippus) novagaeous* (Lund, 1841), which inhabited a dry environment.

The partial results of our research into depictions of pleistocene mammals are being presented at Brazilian and international congresses.

These seek to reinforce what is known about climatic alternations that the Region underwent. Since, as we have said, the vegetation in the region was already caatinga above 18,000 years ago, those animals compatible with the caatinga would correspond to a period between 11,000 and 18,000 and 30,000 years ago.

c) *The Astronomical Tradition*

In the Archaeological Region of Central, Bahia, we also managed to identify an "Astronomical Tradition" in the same chronological range as *homo sapiens sapiens.* This appears in pictorial representations in caves and canyons characterized 1) by the presence of geometric figures representing stars and astronomical events in three degrees of complexity: a) simple representations of stars ; b) astro nomical trajectories, groupings of stars, etc.; and c) counting systems, probably connected with lunation marks, lunar calendars and recording of the solstices; 2) by the intentional superimposition of figures, the presence of handprints, lizards, arrows, and sign/symbols; and 3) by a heaven/earth dualism and probable use of hallucinogens.

The most recent related dating, of 1,270 ± 60 BP (Gif-sur-Yvette), was obtained by C^{14} from the Toca dos Buzios cave. What appears to be a lunar trajectory is superimposed on + *Arctodus (Pararctotherium) brasiliense* (Lund, 1841), placing it possibly in the Pleistocene.

Some of the paintings in the Astronomical Tradition could date from between 18,000 and 30,000 years ago since, as we have already mentioned, there is evidence that the climate was already semi-arid and the vegetation caatinga by 18,000 BP (Ab' Sáber, 1977). Moreover, as emphasized above, the short-faced bear, along with other pleistocene animals depicted, is incompatible with the caatinga. Besides this, Monzon (1987) mentions vestiges of paintings in the state of Piaui dating from 30,000 BP.

The bear is not the only pleistocene animal shown in association with the moon, however. There is one depiction of the *Palaeolama major* - like the bear, a cold-climate animal - possibly in association with the moon.

Representations of the moon from periods as distant as this were also found at the Blanchard Shelter in France, engraved on what was also a pleistocene animal bone. This was the "lunar calendar" described by Marshack (1964), dated at around 30,000 BP.

The moon was doubtless of great importance to prehistoric hunting groups anywhere in the world. Even today, hunters in Brazil's Northeast (Bahia), using very rudimentary hunting techniques, classify their prey as "bright" and "dark" moon animals, and observe, for example, that wild pig always walk towards a full moon (which greatly simplifies hunting).

d) *Lagoa Santa Man in Central*

Dispelling what had been generally believed in scientific circles for the last 150 years in relation to finds of human bone remains, two incomplete skeletons of "Lagoa Santa Man" *(homo sapiens sapiens)* were found in the Region of Central. Remains of this kind had previously been found only in Lagoa Santa Archaeological Region in the state of Minas Gerais, 1,000 kilometers (825 miles) from Central.

e) *Rock Paintings from the Historical Period*

There are important archaeological records in the Chapada Diamantina in the form of paintings from the period subsequent to Brazil's discovery by Cabral. Anthropomorphic and zoomorphic images with characteristics of the historical period are plentiful at the Toca Bonita cave, on the Pau D' Arco estate in Central.

These paintings, of cattle, men and donkeys, isolated or in groups, represent situations typical of the economic activity predominant in the area during the seventeenth and eighteenth centuries: cattle farming. The images suggest that a secondary cattle trail may have passed nearby, since

the principal known trails in Bahia ran to the north and south of the Toca Bonita.

The pictorial remains at the Toca Bonita, predominantly on the theme of cattle farming, confirm historical information about the area which, with its caatinga vegetation, was most suited to cattle farming.

These paintings may be related to an indigenous tradition which dates from prehistory: that of associating the rhea with mammals, including man.

One observation that should be made here is that, although cow, man, rhea and donkey are also present in the most popular folk event in Brazil -- the Bumba-meu-boi -- it is simpler, at the present stage of our research, to relate the historical remains at the Toca Bonita to the prehistoric remains found at the Toca da Lagoa da Velha and Toca das Corças, where there are also repeated instances of mammal-bird associations. This correlation appears more acceptable than any link between the figures painted at the Toca Bonita and the Bumba-meu-boi, although such a link may well exist.

Other paintings from the historical period, like those in the Sincorá mountain range, appear to relate to the area's other economic activity: mining.

This economic activity, pursued in the Chapada Diamantina during the eighteenth and nineteenth centuries, made systematic use of slave labor from Africa. This, in turn, led to the formation of quilombos[2]. The Sincorá paintings, which represent letters, could thus be attributed to Negroes since the strokes and type of drawing (letters with no animals) differ markedly from the norm for indigenous designs.

There are records of rock paintings by Negroes from quilombos in other states, such as Minas Gerais. Apparently the paintings by Negroes in the Sincorá aimed to express their achievements or sufferings in the form of the letters with which they were branded.

3. The Threat of Destruction

The unique collection of archaeological finds described above is at risk of being destroyed by the action of the following factors:

a) Human Interference

- Present-day residents write over the paintings using chalk or charcoal.
- Quartzite banks are blasted for road surfacing (Morro do Chapéu) and residential construction in the area.
- Limestone is quarried with the aid of dynamite, in the isolated limestone outcrops forming depressions and caves on the uplands, as is metamorphosed limestone (marble). Although the marble from the region does not contain fossils, there are caves in this kind of rock which contain prehistoric paintings.
- Agricultural earthworks are burying or removing palaeontological and/or archaeological material in the depressions on the limestone uplands. As explained, these natural reservoirs were veritable traps for pleistocene megafauna, making them easy prey for prehistoric hunters. On the other hand, prehistoric man would not have needed to remove his dead from the sinkholes as they were not the site of habitation.
- The sinkholes are used by washerwomen who, out of curiosity, pick up and collect palaeontological and archaeological material found in the sinkholes. There are paintings in some sinkholes, like the one at Mundinho.
- Cattle farmers use these natural limestone reservoirs as waterholes.
- Uncontrolled extensive herding of goats which destroy the caatinga vegetation will lead to desertification in the long term.
- The vegetation is burnt off for various purposes: in preparation for planting, to combat the "exu" (an aggressive wasp) and Africanised bees. The smut from these fires causes permanent damage because, unlike the chalk and charcoal, it cannot be cleaned off.
- Hunters' campfires inside the caves produce sooting, flaking and splitting of blocks.

b) Natural Forces

- Some natural forces contribute to preserving the finds. This is the case with the film of silica and iron oxide which forms over the paintings on quartzite during the rainy seasons, protecting them, or the film of limestone covering the paintings, which also protects them. In very large quantities, however, these have the opposite effect of completely concealing the paintings.

- A kind of "crackling" of the film of silica and limestone, caused by the sun.

- Precisely where the paintings are located, external portions of the quartzite banks collapse under the action of the rains.

- Also where the paintings are located, external portions of limestone banks collapse under the heavy spring and summer rains.

- Wasps build mud nests on the paintings.

- Weathering causes the limestone to fracture and flake.

- Weathering also causes fracturing of the quartzite.

- The outsides of cave-walls bearing paintings suffer heavy weathering when covered by water in the spring and summer. Under these conditions, the paintings run the risk of dissolving. When the water dries, in autumn and winter, the paintings detach easily when touched (Toca Bonita).

- Limestone cave ceilings collapse progressively, which may result in sinkholes, filling the caves with rubble and seriously hampering archaeological research.

By campaigns to inform the local population and with the help of local schools and municipal authorities, we are managing to reduce, and in some cases even avert, the risk to destruction by man.

Nonetheless, the action of natural forces is inexorable, uninterrupted and so far more serious. In this connextion, we suggest that UNESCO take the necessary steps for the archaeological wealtha of the area to be documented while this is still possible.

Translation by Peter Lenny.

Notes

1. Vegetation comprising small thorn trees, characteristic of Brazil's inland northeast.

2. Settlements of runway slaves, usually in concealed and inaccessible locations.

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Le jardin du Château Royal de Varsovie: Son passé et son futur.

Malgorzaya Szfranska

Le jardin fait parti du Château Royal de Varsovie depuis sa construction, c'est-à-dire depuis le Moyen Age. Le jardin est âgé d'au moins 600 ans. La seconde guerre mondiale a détruit le Château : en 1944, les nazis l'ont fait exploser. L'architecture a disparu, seul le jardin a survécu. Mais il ne reste que des vestiges : son terrain, ses profils, une centaine d'arbres. Il y a dix ans, la reconstruction du Château Royal a débuté. Le Château reconstruit est pratiquement une maquette. Le jardin cependant gardera son authenticité. L'art des jardins consiste en remplacements continus de plantes et d'éléments décoratifs sans changer le dessin original, sa composition générale et sa symbolique. Dans notre jardin tout cela a été épargné par la guerre. Nous sommes donc en mesure de rappeler le "genius loci". La restauration du jardin couronnera la reconstruction de notre résidence royale; une oeuvre difficile aussi au niveau de l'aspect théorique de la conservation des monuments. L'ensemble du Château ainsi que la Vieille Ville de Varsovie ont été inscrits sur la liste du patrimoine mondial de l'UNESCO.

Le jardin du Château Royal compte environ 4 hectares. Il s'étend entre le Château et la Vistule, le plus grand fleuve polonais. Le jardin occupe le talus du lit fluvial et les terrains qui s'étendent à ses pieds. Les terrasses du jardin offrent un panorama magnifique du fleuve dont l'autre bord se distingue grâce au grand Jardin Zoologique, situé au milieu d'une forêt énorme (au Moyen Age, c'était le terrain de chasse des ducs de Mazovie). La restauration de notre jardin a pour objet une mise en relief des périodes les plus intéressantes de son histoire afin d'en faire un nouvel ensemble intégral.

L'histoire du Château Royal commence au XIIIe siècle. Le Château a été construit pour servir de résidence à des ducs de Mazovie. En même temps on a délimité la ville de Varsovie. Le Château a été conçu comme une tour forte (nommée Turris Magna) accompagnée par des maisons en bois. Apprécié par certains ducs de Mazovie, le Château les accueillait souvent. On a remplacé progressivement les anciennes constructions par des bâtiments en pierre ou en brique. Les premières informations sur le jardin datent du début du XVe siècle. Une analyse des sources écrites et du terrain, laisse supposer qu'un grand jardin du Château a été conçu comme lieu de distractions à l'extérieur des remparts, au-dessous du talus. Il est probable que la grande tour du Château jouait le rôle d'un belvédère (à part d'autres fonctions), d'où l'on pouvait admirer le grand fleuve capricieux, le jardin situé à son bord et la forêt mystérieuse à l'horizon.

Au début du XVIe siècle, après la mort des derniers ducs de Mazovie, le duché a été incorporé au Royaume. Le Château de Varsovie est devenu une des résidences principales des rois. Après l'union avec la Lituanie, Varsovie a été désignée comme le siège permanent de la Diète de la République des Deux Nations, ce qui a amené à agrandir l'ancienne demeure ducale (1563, architectes G.B. Quadro et J.Paar). Le jardin, lui aussi, a changé de forme et d'emplacement conformément à la nouvelle époque. Nous pouvons le voir sur la plus ancienne vue de Varsovie (vers 1581). C'est aussi la plus ancienne vue d'un jardin polonais que l'on connaisse aujourd'hui (Fig. 1). Le jardin, situé sur le talus, près du Château, se compose des plates-bandes aux formes néerlandaises descendant vers le fleuve. Du côté de la Vistule, il y a une porte dans la clôture; celle-ci facilitait peut-être des promenades en bateau.

Sur la couronne du talus, devant le parterre, nous voyons quelques arbres branchus. Sous leur ombrage se trouve le bâtiment des bains. Nous y découvrons un jardin des bains - un écho du monde de l'antiquité, typique pour les demeures humanistes. Le jardin à côté rappelle des prés fleurissants du Moyen-Age. Il accompagne la maison des filles d'honneur, désirantes paraît-il, de profiter des jeux en plein air. C'est là que travaillait Dominik Kominnik, le premier jardinier polonais dont le nom est connu. Nous savons qu'il plantait des roses dans le jardin royal.

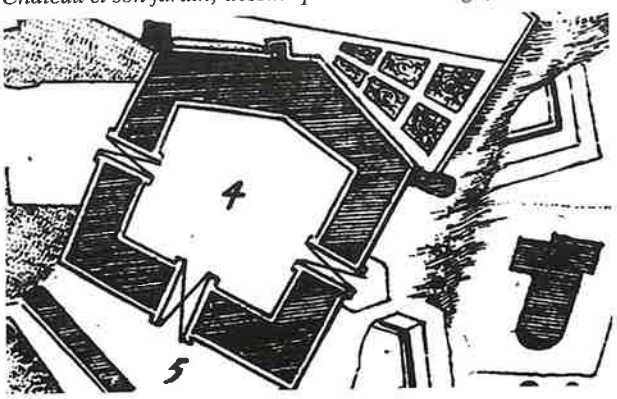
Au tournant des XVIe - XVIIe siècles, la capitale de la Pologne a été transférée de Cracovie à Varsovie. Le Château a été alors transformé en un imposant édifice bâti selon un plan pentagonal, édifice actuel dans son aspect essentiel (1598-1619, architectes G. Trevano et M.Castelli).

Fig. 1. Une des plus anciennes vues du Château Royal de Varsovie; un jardin de renaissance sur le talus; vers 1600.

Le long du fleuve, au pied du talus, on a édifié un mur fort à deux bastions. Démoli peu après, ce mur est préservé en fragments à l'intérieur des bâtiments en retrait.

Sur le talus il n'y avait toujours pas de place pour un vaste jardin. Mais le roi Sigismond III Vasa, aimait les jardins. Les documents prouvent qu'il plantait lui-même des arbres dans ses divers palais. Sa soeur, princesse Anne, était la protectrice des botanistes. Elle a financé la publication d'un fameux herbier polonais (Szymon Syreniusz Zielnik 1613). Sous la dynastie des Vasa, les habitants du Château essayaient de profiter au maximum du terrain pour y créer un nouveau jardin. Un des plus anciens plans de Varsovie (fait par E.J.Dahlbergh en 1656) nous montre un jardin triangulaire sur la couronne du talus (Fig.2). Ce petit jardin est composé d'un parterre de broderie. Celui-ci ne manquait pas de divers arbres fruitiers, tellement

Fig. 2. Le plus ancien plan de Varsovie; un fragment avec le Château et son jardin; dessiné par E.J.Dahlbergh; 1656.



appréciés dans la poésie et par la peinture baroque, décrivant les richesses paradisiaques de la nature. Le jardin a été embelli de fontaines (en albâtre et en bronze), de sculptures, d'oiseaux fermés dans une grande volière. Un voyageur anglais - Peter Mundy - y admirait une serre souterraine qui abritait des plantes rares pendant les hivers durs polonais (1643). Plus tard, un bain y a été construit. Son intérieur a été réparti en chambres destinées aussi à l'admiration du paysage par des portes-fenêtres donnantes sur le fleuve. Ce petit bâtiment avait un aspect à la fois d'un ermitage et d'une demeure pour les Muses qui séjournaient près de la source d'Hélicon. Il soulignait la signification du jardin comme un endroit calme, un endroit d'isolement, un lieu de méditation. Adam Jarzebski, un poète et musicien polonais du XVIIe siècle, a consacré quelques vers au jardin du Château:

"/...../Wynide przez brame z Zamku,

I postrzege z drzewa ganku;

Za niem ogród jest niewielki,

W nim sa kwiatiki, owoc wszelki /..../" ("Je sors de la porte du Château/ Et j'aperçois une galerie de bois/ Derrière laquelle est un petit jardin/Plein de fleurs et de fruits".) En 1981, nous avons fait le premier pas vers la restauration du jardin du Château : nous avons restauré justement ce petit parterre du XVIIe siècle (Fig.3).

Au XVIIe siècle, le Château, loin d'être seulement l'oeuvre de l'architecture, est en liaison avec son environnement. Les intérieurs du Château s'ouvrent vers le jardin par des portes, grandes fenêtres, balcons et terrasses. On peut également apprécier les charmes du paysage de la vallée de la Vistule pouvant être regardée d'une partie du Château.

Dans la première moitié du siècle suivant, la Pologne était gouvernée par les rois de la dynastie saxonne, subissant l'influence de Versailles. Ils voulaient imposer le nouveau goût à la résidence varsovienne, déjà démodée. On a édifié une nouvelle aile du Château d'après le style baroque tardif en prolongeant l'édifice vers le nord (d'après un projet de G.Chiaveri de 1731, réalisé avec des changements par J.Ch.Knöffel en 1741-1746). Les rois saxons voulaient remplacer le jardin du XVIIe siècle - jardin de la préciosité et de l'art - par un grand jardin terrassé, fondé sur un axe, subordonné à l'architecture du Château. Cependant ces projets n'ont pas été réalisés. Mais la façade de l'aile saxonne, reconstruite après la guerre, est visible dans toute sa splendeur sur la couronne de l'escarpement.

Fig. 3. L'epreuve de la reconstitution du pareterre du XVIIe siècle (projet de l'autheur; 1991)

Le dernier roi de la Pologne, Stanislaw August Poniatowski, (régnant 1764 - 1795) était un mécène expérimenté de l'art . Il a refait plusieurs fois les intérieurs du Château en renforçant l'influence du style néoclassique en Pologne. Le peintre Bernardo Bellotto (le neveu de Canaletto), auquel nous devons tellement de belles vues de Varsovie, a peint un tableau montrant un petit jardin ancien, avoisinant le Château, transformé en manège (fig.4). Le roi s'intéressait à l'art des jardins. Près de Varsovie, il a fondé une résidence d'été magnifique, le parc de Fazienki. C'est au roi Stanislaw August que le premier traité polonais sur la composition des parcs a été dédié (August Moszynski Essai sur le Jardinage Anglais 1774). Le manque de place sur le talus du Château ne permettait pas toujours d'agrandir le jardin. C'est pourquoi le roi a décidé de faire entreprendre, avec son propre argent, l'assèchement d'une partie du lit fluvial au pied de l'escarpement. Au XVIIIe siècle, le courant principal du fleuve était déjà éloigné de l'ancien bord. Cela permettait de rêver de l'arrachement du fleuve d'un grand terrain nouveau. Cette décision du roi est née de l'impossibilité de développer un vaste jardin. Le plan de Varsovie de 1779 montre, pour la première fois, la nouvelle terre arrachée de la Vistule. Simultanément, les architectes du roi avaient des projets d'un immense jardin. Mais, à la fin du XVIIIe siècle, le destin de la Pologne a été tragiquement interrompu. Après trois partages successifs entre trois puissances voisines et la suppression de l'état souverain, le roi a été forcé d'abdiquer. Ce n'est qu'après 30 ans que ses grandes idées seront reprises.

Un grand parc n'y a été réalisé qu'au début du XIXe siècle. Quelques architectes ont élaboré des projets

Fig. 4. Bernaedo Bellotto, Vue de Varsovie du côté de la terrasse du Château Royal; vers 1773; Château Royal de Varsovie.

d'arrangement des terrains autour du Château, y compris un grand jardin ouvert au public. Mais la création du jardin fut finalement confiée au grand architecte Jakub Kubicki (réalisation du projet : 1817 - 1831). Son vaste jardin constituait un canevas géométrique d'allées, subordonné à l'axe principal formé par l'ensemble du Château-jardin. Cet ordonnancement géométrique, surprenant au XIXe siècle, était utilisé assez souvent pour la composition des parcs publics et de grands jardins des résidences princières. C'était Hegel qui a écrit que les jardins du genre régulier étaient destinés pour des rois et des princes.

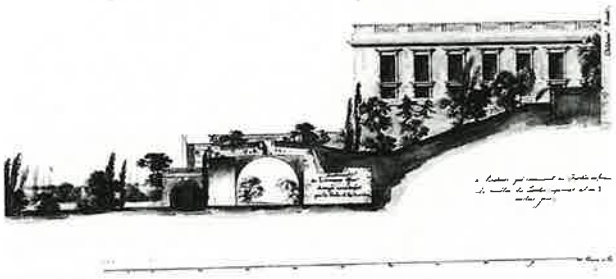
Le nouveau jardin devait être traversé par une grande rue de la ville. Cette rue importante depuis longtemps liait les quartiers situés au bord de la Vistule. On n'a pas pu y fermer la circulation. L'architecte Kubicki a dû résoudre un problème difficile: comment associer la rue au parc? Comment associer la circulation urbaine à des promenades tranquilles dans un parc? Il a trouvé une solution simple et géniale. Il a caché la rue dans un tunnel. Un des murs du tunnel était percé d'arcades, d'où vient le nom de cette oeuvre extraordinaire : "Arcades de Kubicki" (Fig.5). Les promeneurs se trouvant dans le jardin sur le talus, pouvaient descendre un escalier monumental au-dessus de la rue et continuer la promenade dans la partie inférieure du jardin (Fig.6 et 7). Une grille dans chaque arcade séparait la rue du jardin. Cette invention très moderne est mise en application dans nos villes d'aujourd'hui.

L'architecte Kubicki considérait les Arcades comme un édifice du jardin. Les Arcades se trouvaient dans le jardin, près du fleuve, au pied d'un haut talus. Kubicki a donc conçu l'idée d'introduire dans l'intérieur des Arcades, le reflet d'une grotte. Ce concept s'est exprimé en particulier dans le revêtement des murs. En entrant, dans la pénombre, on distingue peu à peu de petits cailloux couvrant des murs de façon qu'il fasse penser aux grottes de jardin. L'architecture perd ainsi son caractère artificiel en se transformant en une oeuvre de la nature.

Fig. 5. M. Zaleski, Vue du Château Royal avec les Ardades projetées par J.Kubicki; aprés 1831.

Fig. 6. M. Zaleski, Vne des Arcades de Kubicki et Château; vets 1839; Musé National de Varsovie.

Fig. 7. J.Kubicki, Projet du nouveau jardin et des Arcades au-dessus de la rue; 1817.



Après leur construction, les Arcades sont devenues objets d'intérêt et d'admiration à cause de (comme l'on écrivait) "l'audace de leur concept". Le jardin formé sur le toit des Arcades a été identifié comme le "jardin suspendu de Sémiramis". Cette définition se référait à l'étrangeté de ce bâtiment, tout à fait inattendu, à Varsovie, au début du XIXe siècle. Les Arcades peuvent être interprétées comme une oeuvre très moderne et anticipant des idées urbanistes actuelles. Le Château Royal de Varsovie a été détruit pendant la dernière guerre. Il ne faut donc pas oublier les Arcades qui étaient épargnées pendant la guerre et constituent le dernier élément de l'évolution de l'ensemble du Château. Hélas, depuis leur construction, c'est-à-dire pendant plus de 170 ans, les Arcades n'ont pas été préservées. On manquait toujours d'argent; au XIXe siècle comme aujourd'hui. A présent, la direction du Château Royal initie un travail long et difficile de restauration des Arcades qui se trouvent dans un état lamentable.

Au XIXe siècle, après les partages de la Pologne, le Château était la résidence des gouverneurs russes. Jusqu'au milieu du XIXe siècle, la partie inférieure du jardin s'étendait toujours devant les Arcades. Au début, le nouveau parc s'agrandissait et devenait de plus en plus beau. Accessible au public, il était un des trois parcs varsoviens les plus fréquentés. Au-dessous de l'escalier des Arcades, on a aménagé une petite ménagerie. Sur des vastes pelouses, sous l'ombre des arbres, les promeneurs pouvaient apercevoir un chevreuil apprivoisé. Selon l'opinion des journalistes varsoviens du XIXe siècle, le jardin du Château était "un lieu privilégié des rendez-vous des couples amoureux se cachant sous le feuillage des arbres branchus". Nous oublions qu'aux cours des siècles, la localisation du Château sur le haut bord de la Vistule était considérée comme très pittoresque. Il y a 150 ans, les promeneurs dans le jardin du Château se rendaient volontiers sur le toit des Arcades. Cette nouvelle terrasse offrait un panorama décrit à l'époque comme "sans doute la plus belle vue à Varsovie, atteignant au-delà de la Vistule aussi loin que la vue peut porter".

Malheureusement, les autorités russes, inquiétées par les insurrections nationales polonaises, ont planifié de grouper des troupes Cosaques tout près du Château. Les Arcades ont été fermées, murées et transformées en écuries pour l'armée russe (après 1831). Cette transformation, malheureusement, leur a ôté toute légèreté en les changeant en un bâtiment laid et lourd. Dans le jardin devant les Arcades, les occupants ont commencé à installer des casernes et des écuries. Le jardin dévasté est devenu un terrain d'exercices militaires. Il y avait de moins en moins d'arbres. Les plans de Varsovie, dessinés vers 1900 montrent, au lieu de l'ancien jardin, une triste tache blanche.

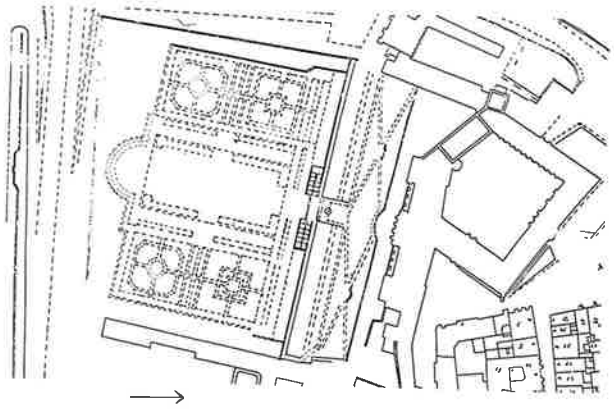


Fig. 8. Plan de Varsovie; un fragent avec le Château et le nouveau jardin; 1938.

Après la première guerre mondiale, la Pologne a recouvré son indépendance. Le Château est redevenu un des symboles de l'État et la résidence du Président de la République. A cette époque-là une rénovation du jardin a été commencée. Le jardin inférieur a été conçu dans un style fastueux néo-baroque. Son auteur, l'architecte Adolf Szyszko-Bohusz, a composé un quadrillage géométrique des bosquets divers, répartis autour d'un bassin (Fig.8). Le jardin n'a été aménagé qu'un an avant l'éclat de la IIe guerre. La guerre n'a pas laissé à la forme du jardin, le temps de se développer. Les haies des bosquets n'étaient pas taillées, le bassin a été démoli et tous les autres éléments se sont dégradés.

La seconde guerre mondiale a détruit le Château et le jardin. Il y a quelques années, la direction du Château a commencé la restauration du jardin qui couronnera la reconstruction du bâtiment du Château Royal. Il n'y a que deux résidences officielles royales en Pologne : la nôtre, dépourvue de jardin, n'est pas complète. Le jardin et le Château formaient toujours un ensemble inséparable - dans un aspect artistique, symbolique, fonctionnel. En préparant un projet de jardin, on a déjà effectué: 1/ des examens archéologiques et géologiques du terrain; 2/ de

Fig. 9. Le premier résultat de la Château royal (projet de l'auteur, 1994.)

études historiques approfondies, faites par l'auteur, qui ont donné un résultat en forme de la première monographie du jardin du Château Royal de Varsovie. La riche histoire du jardin nous fait poser la question suivante : quelle période historique faut-il restaurer? Nous ne pouvons pas, bien sûr, retourner à une période choisie arbitrairement. Nous ne pouvons pas privilégier une époque aux dépens d'une autre. Nous ne pouvons que prolonger l'existence de notre jardin, en conservant avant tout son sens : sa tradition, son contenu symbolique. Après l'analyse des vestiges de l'ancien jardin nous avons décidé de souligner quelques chapitres de l'histoire du jardin du Château. Premièrement, le jardin baroque, placé sur la couronne du talus, près de l'aile du XVIIe siècle. Deuxièmement, le parc du XIXe siècle sur le talus et au-dessus des Arcades de Kubicki, donc le parc du temps de la construction des Arcades. Troisièmement, le jardin des années 30 du XXe siècle, situé au pied du talus, où une centaine d'arbres de cette époque-là a été conservée.

Le petit parterre du XVIIe siècle renaquit en 1991, à l'endroit où le jardin baroque avait totalement disparu après la IIe guerre. Nous l'avons recréé tout en nous basant sur la documentation de l'époque (projet de l'auteur). Pour ce coin, nous avons fait une copie de la sculpture représentant un dauphin, faite à Florence au début du XVIIe siècle et apportée à l'un des jardins varsoviens par le roi Ladislas IV Vasa (Fig.9). La sculpture est trop précieuse pour être exposée en plein air (elle appartient à la collection du Musée Historique de la Ville de Varsovie). Au XVIIe siècle, A.Jarzebski (mentionné ci-dessus) a fait une description en vers de ce joli dauphin de marbre.

Le grand jardin inférieur, d'après un projet du professeur Janusz Bogdanowski et Dorota Uruska-Suszek, mettra en valeur tous les vestiges du jardin d'avant-guerre (Fig.10). En ouvrant le jardin au public, nous voulons changer le sens actuel de la visite du Château. Selon notre projet, les visiteurs viendraient du côté de la Vistule où il y aura un parking. Une grande porte d'entrée ouvrira l'axe principal du jardin. La plus belle façade du Château s'élèvera sur le talus, au-dessus du bassin et des parterres. L'oeil ébloui embrassera la totalité du jardin qui gravira par terrasses successives la pente de l'escarpement (Fig.11). Aujourd'hui, personne ne peut regarder le Château de ce côté-là. Sur la droite, l'allée mènera à une partie du jardin toute différente. Son terrain n'appartenait pas au jardin du Château jusqu'à nos jours. Les auteurs du projet y prévoient un petit parc paysager dans le style du XIXe siècle, composé autour d'une jolie maison construite à cette époque là. Le promeneur y trouvera des sentiers sinueux, des pelouses claires faisant admirer la beauté des groupes d'arbres et d'arbustes. Au début de cette section se placera un groupe important de grandes pierres provenantes de l'époque glaciaire et trouvées

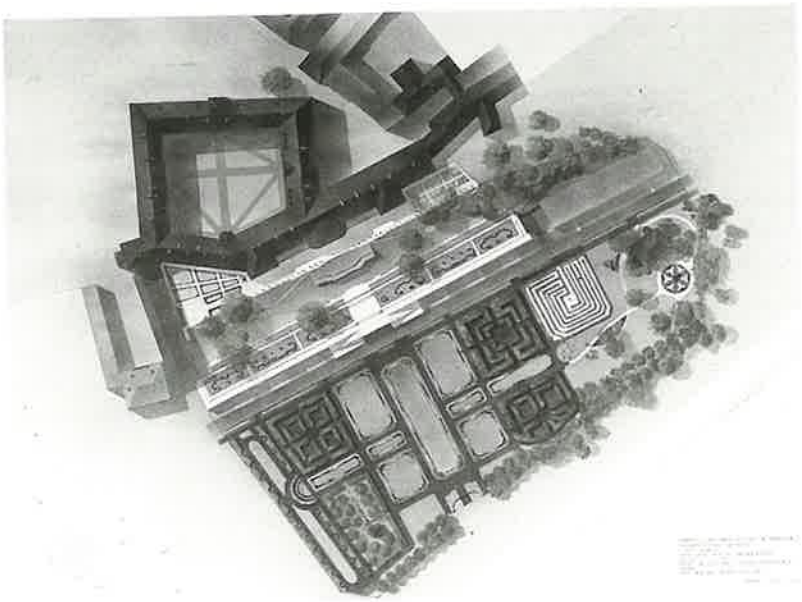


Fig. 10. Projet du jardin restitué du Château Royal (J.Bogdanowski et D. Uruska-Suszek, 1994).

Fig. 11. J.Bogdanowski, Vue du jardin futur; 1994.

sur ce terrain (qui était auparavant un lit fluvial). Plus loin, le visiteur découvrira un grand massif de fleurs du printemps savamment dessiné et puis un autre massif présentant l'abondance de couleurs des fleurs de l'été. Le promeneur parviendra à un petit rosaire rond, puis errera dans un labyrinthe, et finalement retrouvera les vestiges d'une grande orangerie, prévue au XVIIIe siècle, réalisée partiellement par Kubicki, mais jamais finie. Tout l'ensemble sera entouré par une clôture. Son projet est fondé aussi sur des vestiges d'une clôture faite à Varsovie dans la Iere moitié du XIXe siècle.

Évidemment, nous nous rendons compte que le jardin du Château n'a jamais existé sous cette forme. Notre conception aura cependant des valeurs didactiques. En plein air, nous pourrons donner des leçons d'histoire de l'art des jardins à nos visiteurs. Nous pourrons leur montrer un exemple de jardin régulier ainsi qu'un exemple de parc paysager et un morceau de style des années 30 du XXe siècle. On attache également une grande importance au choix de plantes, fondé sur des usages dans les époques concernées. Les visiteurs feront la connaissance de trois mondes végétaux divers : du XVIIe siècle, du XIXe siècle et du style raffiné du temps entre les deux guerres. Aujourd'hui, les touristes ne visitent que les intérieurs du Château. Dans le futur, l'itinéraire de la visite du Château se prolongera jusqu'au jardin. Cela permettra d'admirer l'architecture du Château dans sa splendeur qui naît de l'entourage du vaste jardin.

Le jardin du Château Royal, bien que modifié, demeure un exemple important de l'art des jardins en Pologne. En tant que jardin royal, il était toujours fait et refait par les plus grands artistes de la cour polonaise. Donc il mettait en évidence des préférences esthétiques et les changements des goûts des mécènes royaux. Notre restauration du jardin du Château Royal n'est pas une recherche du temps passé. Nous écrivons un nouveau chapitre de l'histoire de notre jardin, tout en conservant sa tradition et sa signification. Puisque l'unique objet du travail du conservateur des jardins historiques ce n'est pas la matière, c'est le "genius loci".

Conservation of "Little Netherlands" in Semarang, Indonesia

Eko Budihardjo

Introduction

Semarang is the capital of Central Java province, with a population of 1.2 million people in 1995. As a fast growing coastal city, located in the middle of the development belt between Jakarta and Surabaya (the two biggest metropolises in Indonesia), Semarang has to face severe problems in its attempt to keep its historical buildings intact.

We have witnessed a series of destruction and demolition of old historic buildings in Semarang to make way for new modern or post-modern buildings which are often insensitively designed, unfit to their unique surroundings.

The intrusion of new buildings in a metropolis like Semarang is unavoidable, given the need to cater for contemporary needs or new functions. However, if those buildings are designed without due respect to the uniqueness, character, or ambience of the historic environment of the city, we can call it an act of 'cultural harassment'.

This paper is concerned with the problems of conserving the old city centre of Semarang, which is popularly known as "Little Netherlands"

Some ideas will be put forward to save and revitalize the historic district which is still full of Dutch colonial architecture, to let the next generation have the chance to know the visual truth about our history. Up till the present day, Indonesian urban managers, who have the power, and the entrepreneurs, whose main aim is to gain profit, still perceive historic conservation as a luxury they can ill afford either in time, money, thought, or energy. It is time to change this perception. If we can convince them that conservation not only contributes to the upholding of human spirit and enhancing the quality of life, but is profitable as well, then the power-holder and the profit-seeker might truly be partners to the Planners and the People. Therefore, the key challenge for the near future will be to integrate historic conservation into the very psyche of the whole community, as an integral part of everybody's expectation.

Architectural Suicide

The assassination and disappearance of our cultural heritage in the most strategic areas within the city were usually conducted by the private sector, with the permission of the local government officials. It can be termed "architectural suicide", and we are unfortunate that there are no graveyards for the demolished buildings, where we can pay them due respect. As we may already know, among the 4 P's mentioned above (Power, Profit, Planner and People). the first two are the most influential in the creation of the built environment.

There are several reasons for this misconduct, among others:

a) Economic development pressures, particularly along the main roads in the most strategic areas in the city.

The booming of high-rise office buildings, hotels, shopping centres, department stores, up to the recent trend of 'super- blocks ', can be clearly seen in most big cities, coupled by the disappearance of the historic quarters of the city, including the old close-knit communities and neighborhoods. In some cases whole kampong settlers had to be evicted. No wonder that the popular term of urban renewal is often called urban removal.

b) Most government officials or decision makers are obsessed with modernism, which they see as a real sign of progress. Conservationists are accused of hindering and stopping progress, whether on the street or in the law courts. The act of conservation is often viewed as irrelevant at best, an impediment at worst. It looks pale in comparison with development, while actually it should be seen as two complementary sides of the same coin.

A city without old historic buildings is just like a man without memory.

c) Some prominent persons of the older generation felt ashamed of their own past and were eager to erase the bitter

times of the Dutch period, not wanting their younger generation to witness any sign of colonisation.

It is in fact peculiar and illogical, bearing in mind that even the Australians conserved the Rocks prison-complex, without feeling inferior or afraid that they might be harassed by the very fact that their ancestors were prisoners from Britain. History is history, not 'his story'.

d) There is prejudice towards particular ethnic communities such as the Chinese, so that the existence of several Chinese towns are left deteriorating on purpose. Futhermore, the Chinese architectural heritage (temples, tombs, gates) is not listed, despite the fact that it is unique, has a long history, is and still utilised at particular times for Chinese rituals and ceremonies.

Sam Poo Kong and Pecman or Chinatown is an integral part of the history of Semarang and the diverse mix of architecture, people and services has always made it a unique area of the city.

e) There is a lack of laws and regulations regarding conservation. Only recently, in March 1992, the Indonesian government passed a law on the Conservation of Cultural Heritage *("Undang-Undung tentang Benda Cagar Budaya")* Previously there was only the outdated *Monumenten Ordonantie Staadtsblad* 2381/1931, a product of the Dutch government.

As a comparison, the number of historic preservation ordinances in the USA increased dramatically. In 1970 the number totalled 250 and today, 1995, there are more than 1000 historic preservation laws. And those ordinances are considered the most effective legal instruments for protecting landmarks and historic districts.

Little Netherlands Historic District

Based on a series of studies conducted by the Faculty of Engineering at Diponegoro University since 1988, 101 old buildings were considered as having cultural significance, i.e. aesthetic, historic, scientific, or social value for past, present or future generations.

It means that the buildings are worth conservation. In 1992 the Mayor of Semarang issued a decree, stating that all this hertitage should be safeguarded against any drastic changes. Any modification, rehabilitation or renovation are not allowed without formal permission from the local municipality of Semarang. It was an excellent and brave step to ensure the survival of historic buildings and architecture of special interest in the city of Semarang.

The study also recommended the conservation of three districts : the surroundings to the Immanuel church in the old city centre to the historic Young Monument (Tugu Muda), and to the Elizabeth Hospital on the upper hill of Semarang. The first mentioned historic district, popularly known as Little Netherlands, comprises more than half of the historic buildings in Semarang. Some of them are deteriorating due to lack of maintenance, but most are quite well kept. So despite all kinds of 'cultural harassments' and 'architectural suicides' in the large Indonesian cities, we still retain most of our colonial buildings in the old city centre of Semarang. The area of Little Netherlands gives a strong sense of place, which is unique and almost impossible to find in other cities in Indonesia. We have learned from our mistakes in the past (the disappearance of *aloon-aloon,* the demolition of the first national railway station at Bubakan in the old city centre of Semarang, the destruction of a nice colonial sugar factory at Pecinan, etc.), and are now attempting to conserve our Little Netherlands in Semarang amidst a tremendous boom in develpment throughout its downtown.

Nicknames

A sign of hope comes from the citizens of Semarang themselves. The fact shows that they have a great sense of belonging to old historic buildings or historic quarters. It can be easily identified by the way in which they gave unique nicknames to particular works of architecture and to specific areas like :

- " Office of Thousand Doors" *(Lawang Sewu)* for the railway office building having a lot of doors;
- "Pregnant Church" *(Gereja Blenduk),* for a Catholic Immanuel church with a big dome at the top;
- "Ghost House" *(Rumah Setan),* for a court of justice building perceived as a place where the death penalty was given in the colonial era,

  "Sugar Building" *(Gedung Gula),* for a big factory building that produces sugar from cane;
- "Stone House" *(Gedung Batu)* which is also known as Sam Poo Kong, for the ancient Chinese religious complex.

The buildings which have been given nick-names by the local people are historic buildings that are mostly remembered by and familiar to them. They functioned well as landmarks.

In some traditional and homogenous settlements, many historic buildings and districts have been well conserved without any help from the goverment at all. It is a very fascinating kind of self conservation, based on the concept of *gotong-royong* (mutual self help).

The Constraints

With the dwindling budgets and growing deficits, the local government can no longer conduct conservation activities alone anymore.

We must be familiar with these financial problems, since there are people who do not value architectural and historic qualities but who are concerned solely with the cost and profit of buildings or real estate and with financial techniques that affect those costs and profits.

In order to save the old buildings in our city centre, we must learn the art of negotiation and real estate transaction.

Conservation when well done can mean profit for business and tax for local government. Instead of tearing old buildings down and starting all over again, it might be more beneficial to restore what is already there, which is not necessarily to opt for the easier solution. At least the community or the owner of the building in the historic district has to make a commitment before the private sector can be expected to finance the conservation. That commitment takes two general directions. One is legislative, and the other consists of various capital improvements in the area (Biddle, J.1976 : 5)

Historic preservation or urban conservation in Semarang should be viewed as the best means of recovering the worth of past investments. By encouraging new business development within the existing Little Netherlands in the old city centre of Semarang, conservation can also spare the local government some of the cost of duplication utilities and services in underdeveloped areas.

Planners and decision makers are beginning to realize that people often find greater contentment in the comfortable scale and friendly texture of restored historic districts than in the midst of contemporary new buildings that seem intended to make the ordinary citizen feel unimportant.

The ambience of the old colonial times of Semarang can be easily felt by the scale of the buildings (no buildings extend to more than three stories), the facade full of arches, the texture of exposed bricks and stones full of ornaments. It is not just a romantic indulgence for nostalgic reasons. It is a physical restatement of the long history of the Dutch colonial period, which could be utilised as a source of inspiration for the design of new buildings. Old historic buildings should be seen as three-dimensional textbooks of our past which can be read again and again without creating boredom. This aspect has not been considered so far in the conservation of Little Netherlands.

The govemment can also assist historic districts by providing complementary amenities. In the area of Little Netherlands it is proposed to provide trees, good street furniture, replica historic lamp posts, appropriate designs for telephone boxes etc.

The city strategy of promoting such development will certainly give the Little Netherlands district a feeling of constant improvement and help inspire confidence in the future of the area.

The new lighting at night also helps to create a safe and sound environment, and is powerful enough to eradicate the previous negative image of the place as a red light district.

Recommendations

The entire area of Little Netherlands which has undoubtedly contributed to the history of Semarang is a good example from the Ducth colonial era with its own specific identity, and should be strongly safeguarded as a historic district. Being an important core in the old city centre, it is felt urgent to free several roads within the area from heavy and light vehicular traffic. Pedestrianisation of selected streets, particularly the main street in front of the Pregnant Church, should be introduced. Ornamented paving blocks are preferred, rather than dull asphalts. It is recommended to prepare a calendar of cultural events to be conducted on the park and main streets, such as poetry reading, open air art exhibitions, keroncong (traditional music) and Gambang Semarang performances etc. Outdoor cafe souvenir kiosks and street vendors or hawkers should be given the opportunity to operate at a particular time, to strengthen the sense of identity of an area which is already full of tropical charm and informality.

Appropriate new features sensitively designed, based on authentic colonial forms, would help to further enhance the identity of the place. For the sake of continuing the evolution or sustainability of the area new expressions of contemporary activities and needs must be given room to develop at vacant sites or at sites with buildings of poor architectural quality. It should be kept in mind that architecture is the archaeology of the future.

The involment of the local government, the private

sector and the community as a whole is badly needed to carry out conservation projects in Little Netherlands in accordance with specific planning and design guidelines for the area. If conservation is to mean anything, it must involve both the retention of old values held by the people, and the changes or new developments to cater for the needs of modern society. The campaign of conservation of Little Netherlands in Semarang should be strengthened and followed with action-oriented programs such as:

- education and training on architectural conservation, either in Indonesia or overseas ;

- preparation of detailed planning and design guidelines supported by a development control mechanisn for the conservation of the Little Netherlands district particularly relating to its architecture;

- the establishment of an intersectoral body or institution with the specific task of dealing with conservation matters;

- finding ways to raise funds or financial assistance needed for conservation projects, based on mutual benefit participation or partnerships, both nationally and internationally.

- introduction of tax relief, transfer of deveolpment rights, and other incentives for the owners of old historic buildings in the Little Netherlands historic district, as an important part of Semarang's history.

Semarang, July 31, 1995

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Sao Paulo - memory and oblivion

Suzanna Cruz Sampaio

Cet article MEMOIRE ET OUBLI, rapporte en 5 topiques l'histoire de l 'evolution urbaine de la ville de São Palo où l'auteur est née a fait ses études et a exercé son activité professionnelle. Elle prena comme rèférence et point de depart pour l'analyse, l'année de 1954 lors de la comémoration du IVème Centenaire de la Ville. A l'époque sous l'influence de manifestations triomphales, telles que La Ville qui construit le plus dans le monde. "la démolition de quartiers entiers a détruit ce qui restait du bourl des maisons de torchis" des constructions de la "ville imperiale et des batiments de la "ville bourgeois républicaine", ce qui a provoqué la perte totale du patrimoine Historique edif à.

Ce qui reste des différentes époques, protegé officiellement est maintenu de façon irregulière et, à la suite de nouvel essor de "Progrés" aux décades de 70 et 80 plusieurs biens sont en ruines. Le phénoméne contemperain de paupérisation et super occupation desordonée de differents espaces urbains est considéré comme le facteur déterminant de l'actualité chaotique de la ville.

L'auteur présente des conclusions pessimistes pour le futur concernant la sauvegarde de l'heritage culturelle de São Paulo. Et elie remet a l'utopia la possibilité de solution des problèmes actuels On peut trouver annexée à l'article, la bibliographie qui servira d'appui et de consultation aux intéressés.

In 1914 during the celebration of the 4th Centennial of São Paulo, people boasted about the great progress the city had made by admitting the high rate of construction, a new house building or street per hour so they said transforming the landscape and thrusting its way towards a glorious future, second to no great capital elsewhere. Save for the great cities in the USA, large urban centres such as São Paulo and Rio de Janeiro are generally capital cities which concentrate the largest and best historical and architectural sites-made up of significant and often artistic constructions fully consistent with the power they represent.

In Brazil, Rio de Janeiro which has been a capital city for over a century upto 1953 is evidence of this with its mighty constructions associated to one of the world's finest natural landscapes. Sao Paulo never bore the symbolic physiognomy of power nor does the beauty of its relief, its rivers and vegetation stand out at first sight. Like most American cities the urban setting of São Paulo demonstrates the power of it civil society not its political power. During the celebrations of its 400th anniversary the 'Coil' of infinite progress was chosen as the symbol, thus consecrating bourgeois ideas.

It is still surprising to look back on the pride and excitement which took hold of the people at that time. Everyone resorted to the strength, talent and courage of Paulista origins so as to explain the material metamorphosis the city had undergone in the former seventy years (1874 - 1950) which encompassed all preset academic standards so much so that even the service Nacional de Patrimonio Historico set up in 1937 would find São Paulo's eclectic constructions "strange to the National Heritage" Baroque of Minas Gerais of the North.

The continuous destruction of the original colonial village and of the provincial imperial town, and the devastation of almost the entire bourgeois republican architecture was thus hidden beneath the "progress" metaphor which constituted the ultimate justification for all the previous destruction.

The architectural and historic heritage of São Paulo was thereby buried beneath endless layers of reinforced concrete. This paper aims at searching among the debris for whatever significant evidence has remained of these past historical moments

São Paulo Do Campo De Piratininga : A Clay Village 1554 - 1822

Contrary to the rules set forth by the Portuguese, whereby settlements should always be located on the coast (so as to avoid raids by pirates or cruisers of other nations) the Jesuits and other Portuguese seamen settled in this area and hence crossed the Serra de Mar towards the hinterland. Thus in 1664 the historical disobedience of the Jesuits lay the foundations of a seminary for the Catechism of Indians in the Piratininga Plateau. On January 25th, St Paul's day, a mass was held inaugurating the small seminary.

Although the small village on the hill between rivers Temanduatel and Anhangabad was born of transgression the coexistence between Indians and colonizers was made official under the rule of Governor General Mem de Sa in 1560, with the arms and pillory, symbols of municipal jurisdiction which had formerly been denied to the village of Santo Andre da Borda do Campo.

At first, this urban ecclesiastic nucleus grew slowly, developing a Portuguese construction technique with a road pattern which avoided steep hills and settled households on firm ground. The material used was clay, but instead of moulding it into bricks it was smashed between wooden boards tightily bound by an iron mesh. The "smashed clay" architecture must have been inevitable as the alluvium provided good clay. above all due to the absence of quarries on the flat top of the Jesult hill.

Much has been said about the modesty of the early "paulista" houses and of their "calpara" (rustic) style, with its endless repetitiveness. However the reasons underlying the choice of such an architectural style were often ignored namely the precarious economic condition of the first inhabitants who were peasants and craftsmen. The dwellings arising in such a setting were simple, with no ornaments and built by the dwellers themselves for personal use. The facades had but a few small openings which were as much as the clay wall would allowed. The deeply overhanging eaves were long and held in placs by props so as to protect the walls against rainfall.

In 1585, the chronicler Fernão Cardim, described the "quinces, peas, grapes, onions, wheat and barley" plantations, cattle breeding and the first street names: São Bento, São Francisco, Santo Antonio, Direlta, Misedcordia, Carmo, thus showing how land was used according to religious precepts. One century after the foundation of the Jesuits' Seminary the houses were worth 5 thousand "rels" and in the central area, those with "two floors, having its corridor and backyard roofed with tiles" were worth 24 to 50 thousand "rels"

The first illustration of the village of São Paulo dates back to 1631: a landscape from the São Vicente "capitania" by João Tebiera Albernaz.

Still in the 17th century, in 1681 the village of São Paulo surpassed that of Santos and São Vicente and was made head of the "capitania". At that time, the urban settlement had approximately 2000 Inhabitants; 260 houses; 3 convents; São Bento, São Francisco, Nossa Senhora do Carmo ; 4 churches subordinated to the Sé Cathedral : Santo Antonio, Nossa Senhora do Rosario dos Pretos, São Gonçalo dos Pardos, São Pedro; and 2 convents for nuns: Santa Tereza, Nissa Senhora da Luz, plus the Jesuit Seminary.

Thus, the century which had been marked by the violent "entradas" and "bandeiras" saw the massacre of thousands of Indians in the neighbouring areas, and the discovery of gold and silver mines which stimulated the growth of a foreign population.

Despite the brutality and cruelty of the "bandeirante" conquests, all the routes towards the hinterland were henceforth consolidated along the paulista rivers : Ribeira de iguape, Tiete, Grande, Pardo Paraiba and Piracicaba. The "entradas" extended Brazillian territory beyond the limits set down by the Tordezilhas Treaty (papal edict "Inter Coetera" 1494) giving rise to new settlements which were to become either the urban centres on the border of the provinces of Minas Gerais, Golas and Mato Grosso or the trading entrepots in Paraná, Santa Catarina and Rio Grande do Sul. All these settlements bore the main feature of the paulista material culture, smashed clay.

In the eariy 18th centrury (1711) the village was promoted to the category of "city". By 1745, it already lodged the bishopric: the enlarged village underwent an architectural transformation and its facades were adorned with shutters, trusses, wooden balconies, props and "mucharable" (moorish balcony protected by a wooden grating).

The 18th century village was marked by peace and boredom and changes began to take place only in the early 19th century. When the Portuguese Royal Family came to Brazil in exile, after 1808, new norms modifying the facades set in. The official recognition of Brazil as member of the

United Kingdom of Portugal and Algarve (1815) and the arrival of the "French Mission" in Rio de Janeiro (1816) inaugurated a new era in Brazilian colonial architecture. The proclamation of Brazil's independence in 1892, which took place in the capital of the province of São Paulo, provided the city with a new political aspect. In 1827, the old Jesuit village saw its Franciscan Convent give rise to the Law College - the nucleus of its universlty.

The Imperial City 1822 - 1889

In 1818, Luiz d'Alincourt, a Portuguese engineer, reporting on his trips to Brazil wrote the following about São Paulo:

> *" The roads in São Paulo are wide, paved and in good condition ; the buildings are made of clay .. There are many stone bridges and some wooden ones. The old Jesuit Convent has become the Government Palace ... This city has the right conditions to lodge a University: cheap abundant food stuff, healthy air temperature and climate, little entertainment, in short, everything seems to favour this site for cultural development " .....*

In the 19th century many travellers wrote similar reports on the pleasant and modest aspects of the city which was enlivened by the students. There had been no significant changes in the first three centuries: housing architecture still used the same pattern; material and construction techniques.

The Lebreton Mission which had changed the "architectural patterns and proceedings" in Rio de Janeiro reached São Paulo only after the coffee plantations set in. The first Brazilian coffee plantations, in 1723 were concentrated in the north. In São Paulo the first plantation in the Paraiba Valley dates back to 1809 - 1830. The plantations in Campinas, between 1809 -1830 transformed the city into São Paulo's main producer as far back as 1835. In 1852 it produced 2.000.000 "arrobas" (1 arroba is approximately 15kg), and by that time plantations were also moving westward. The expansion of coffee plantations took place *pari-passu* with the first industries and not as a successive cycle economy. In 1810 the first iron plant (ipanema) was set up (Catalan moulds), followed by the first cotton textile company in 1811 and the first steam engine sugar refinery in 1836.

The coffee monoculture required some changes. Immigrant work-force (wage earners as opposed to the previous slaves); railways and the enlargement of Santos docks so as to cope with transportation and exportation of the product. Having undergone such transformations, Campinas and Santos now dispute with São Paulo the status of provincial capital. The accumulation of wealth through agricultural revenues transformed the still modest city of São Paulo in the mid 19th century bringing about new brick and masonry buildings. The urban railway stations alongside the factories and the warehouses provided the city with bricks and wrought-iron though neither material was as yet used in common dwellings. In fact the imperial city of Sao Paulo de Piratininga, re-built in masonry over the existing clay was severed from the new "labour city" and laid the foundations for the future residential and services area. In 1875 there were three thousand buildings and after close investigation of urban development, one realizes that the 32.000 buildings existing in 1910 were simply raised on top of the former ones.

The Capital of the Republican Bourgeoisie

After the proclamation of the Republic, Rio de Janeiro was still the capital of the country maintaining its former status.

The city São Paulo relieved from overbearing governmental expenditures, was free to accummulate wealth coming from the coffee trade and to invest in industrialization, the revenues from which would gradually change habits and construction patterns. This renewal was not only a complement to legal norms set forth in 1868 and 1872 but also brought with it a spontaneous demand for embellishment. The late 19th century reform was based on a refinement of social and domestic habits of noble coffee farmers, important urban tradesmen and early industrialists motivated by the arrival of immigrants; above all, the Italians. The latter, experts in artistic handcraft formed the work-force required to sophisticate the façades buildings and even interior architectural designs of the city whose foreign "mansions" used imported material in its construction. The new work-force and the imported material were essential features of the "eclectic period" of the city's architecture. The mighty constructions of the wealthy elite influenced the middle-class housing style, too. Although the houses were evenly set up by the government, with front windows and side entrances, with or without gardens, they used all sorts of ornaments; neo-classical, pre-raphaelite or pseudo-Gothic, renaissance, baroque and neo-colonial. There were sytled wooden blinds, stair rails and Riga pine details, wrought-iron from Glasgow, Belgium and Germany, Italian marbles, French lamps ranging from the most simple to the most sophisticated ones, Portuguese tiles from Porto.

Examples of such "palaces" standing to this day are the Ipiranga Museum, the Campos Ellseos (former residence of the coffee farmer Ellas Chaves), the Justice Palace in the historical centre and the Municipal Theatre.

Many "mansions" built by Ramos de Azevedo were demolished and only a few isolated examples have remained. It is worth noting that the remaining ones were either originally public buildings or became so after being purchased by public authorities. The most distinguishing feature of eclectic architecture in São Paulo was the Av. Paulista, located 850m above sea level that divides the Tieté and Pinheiros basin. This important public road was opened in 1891 and until the mid 20th century it was the main residential area of the agricultural, industrial and commercial capitalists of the State of São Paulo.

The eclectic architecture first appeared during the industrial revolution, out of a peculiar "retro" manifestation against technology and it became vey successful among immigrants seeking their origins. Nevertheless this style found its opponents in noteworthy men like Monteiro Lobato Alcântara Machado and Mario de Andrade who thought that the eclectic style lent the city an "international exhibit" aspect and that as well as "European" the buildings made up a sort of "architectural Esperanto". By the 1920's some isolated modern constructions could already be seen and in the 1930's - at the time of the "Avenues plan" of the engineer Prestes Maia - concrete had already been consecrated. After the end of World War II the demographic explosion led to a construction boom: new ideas, techniques and materials and the valorization of projects signed by distinguished architects who came as war refugees or who were graduates from architecture schools set up in São Paulo in 1946 and 1948.

The city's "modernization" did not accomplish the expected results. The new life style- apartment buildings and houses to let, detached or semi-detached - as a refusal of the "archaic" and "decadent", was part of the struggle towards "modernization". The ruling mentality of the 50's first appeared in the 30's and 40's and the fast, widespread acceptance by the population led to the flourishing of an enormous number of buildings destitute of aesthetic value. Time and lack of maintenance brought irreversible damage. Large deteriorated urban areas bear sad witness to this period, save for rare isolated buildings of historic and architectural value forgotten among the rest, and even then most of them deteriorated and anonymous. Were it not for photographic files, the first architects of São Paulo would have been doomed to oblivion.

For the celebrations of the 400th Anniversary of the city, São Paulo became one enormous building site. In the Ibirapuera region the Oscar Niemeyer project building connected by a "marquise" - predicted Brasilia. Nevertheless the "return to origins" contributed to the preservation of the cultural heritage. Since the federal govemment drew much attention to the Minas Gerais baroque - listed since 1937 - the loss of the old colonial "talpa" (clay) architecture in São Paulo, with the same architectural urban characteristics as the most valuable cities of Minas Gerais, became better appreciated and, as a result, the "bandeirietas houses" still existing at the time underwent repair. The valorization of the first 3 centruries of architectural history had struck official consciousness and had affected the paulista and paulistano population. For, after all, the recognition of "calpira" (rustic country people) roots gave the paulista "quatrocentos" (traditional rich families of land owners living in São Paulo since the beginning of colonization) the aristocratic status they needed.

Thirty years later, the destruction of the eclectic residence in Av. Paulista, of the Brás district, the construction of the underground, and the deformation of Av. São João and part of the Bexiga district with the construction of flyovers resulted in today's city where roads and vehicles crush the path of men. The so-called recovery of the memory in 1954 was rather an unfinished reconstruction of lost identity.

The Contemporaneous City : Problems and Proposals

The city and State of São Paulo, at the end of the 20th century, have public entities deriving from specific legislation for the defence and recovery of the historic heritage. However, the social mobilization for the protection of these assets is insignificant, only existing when the district associations are supported by the "media". The appeal to environment preservation is stronger, as the protection of natural heritage is identified with life preservation. It is well known that when society is not quite developed, the cultural values are less noted.

Actually the city suffers from all kinds of problems, physical, socio-economic and administrative: its geographic location with its rivers where urban nuclei developed successively, the arrival of thousands of migrants looking for new opportunities in the current "Marvelous South" due to the current serious economic crisis and the lack of continuity in the public administration which changes every 4 years, its rules and laws, favouring decadence and destruction. The demolition of whole blocks since 1954, giving place to constructions of different styles and use, has extinguished the character of the urban heritage. The chaotic aspect of the actual city is obvious for all chroniclers.

However, the great technological progress of this century is responsible for the beauty of a significant part of the architectural heritage which is composed of buildings and houses located in garden-districts and condominiums. Since the 30's garden-districts were built according to the Barry Perker designs developed by the City Corp. of London.

Nowadays, parts of Jardins Europa, America and Pacaembu are listed by the CONDEPHAAT (Conselho de Defesa do Patrimonio Historico Artistico Arquitetônico e Turistico do Estado de São Paulo). According to international statements and national charters such as Petropolis (1987) and Cabo Frio (1989), both from ICOMOS, as well as the conclusions of the 1990 São Paulo historic heritage seminar, the participation of ordinary people is very important. The city's listings, mentioned above, were achieved only by the action of citizens grouped into associations fighting against the real estate speculation underlying the urban projects and mega-investments.

The collective consciousness, which must constitute the historic and artistic cultural heritage of a city, is quite evident in the reconstruction of Bologne in the 70's. In the rehabilitation plans of Lisbon since 1975; in the value assessment of the last 30 years of Cuba's historical architecture; in the projects of the seaport areas of Barcelona and New York and of the Quartier de la Defense in Paris; and in the rebuilding of the ZOCALO in Mexico City after the destructive earthquake. This is to single out just a few successes among the numerous failures in this cultural area.

In São Paulo, the violently contrasting situations polarize the concentration and apprehension of professionals working in the cultural heritage field into an argument of poverty and wealth. Due to internal migratory movements more than to vegetative growth factors, the city's population increase caused the disordered occupation not only of sites near water sources but also of other areas where construction is not permitted. Consequently the city's rural and urban boundaries have been deleted.

Up to 1992, the unlawful allotments sheltered almost 3,000,000 people in only 75,000 homes made out of unreliable material. Between 1954 and 1980, the poor population of these areas, called "favelas", grew at the rate of almost 1.049 percent. During the same period, the middle and high-class population growth rate in the urban areas reached, at most 73% (municipal prefecture date of 1992). The SEADE Foundation published statistics, (March 1995) on the increase of "favelados" and "without roof persons" and other inhabitants "with socio-economic status below the poverty level", stating that 42% percent of the large population of São Paulo (including suburban areas) is within this social level!

Of course, we can expect that the future, analyses will study with astonishment the sharp social and urban disparity of the end of this millennium.

Let us hope that, living in more equitable times, they will be able to grasp the difficulties and set up proposals for the conservation, rehabilitation and restoration of the standing cultural heritage. This expectation convinces us of the necessity to preserve significant examples of the architecture and of what remains of the city's original conception.

Acting this way for the safety and protection of past and contemporaneous assets we may convince coming generations to resist future waves of triumphal destruction, especially in the year 2054 which will commemorate the 5th Centennial of São Paulo's foundation when the phenomenon of 1954 could be repeated.

It is essential to document and preserve the cultural comtemporaneous assets in every possible way and with all the available material support if the 20th century is not to appear as just one more chapter in the destruction of São Paulo's heritage.

Note

A study of urban evolution over almost five centuries, when restricted to only a few pages, can be little more than a summary of the bare facts. But it is better to report these facts and not to conceal the neglect accorded to the Paulista architectural heritage. To supplement the initial revue a bibliography is included for those wishing to research or study the subject more closely.

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Renaissance de l'hôtel de Vaux dans la Cité historique du Mans

Christiane Schmückle-Mollard

La Cité historique du Mans possède une série d'hôtels urbains de grande qualité élevés sur l'enceinte gallo-romaine en bordure de la Sarthe. Parmi ceux-ci, l'hôtel de Vaux tient sans doute la place la plus importante. Sa haute silhouette, dressée sur l'ancien rempart, révèle vers la Sarthe une façade austère percée de grandes croisées à meneaux.

Flanqué d'un côté par une des onze tours subsistant de la muraille du Bas-Empire[1] conservée sur une hauteur d'une dizaine de mètres, il est accompagné de l'autre côté par un jardin suspendu planté de grands arbres.

Vers la ville, il se présente comme un logis en équerre autour d'une cour pavée. Les traits du style Renaissance qui le caractérisent sont exprimés essentiellement à travers le décor de ses corniches et de ses lucarnes à frontons sur la cour d'honneur. C'est un édifice de transition, un élégant manoir édifié en ville à la mode des années du milieu du XVIe siècle. Sa construction dans la province du Maine suit de près celle de la maison du Grabatoire dont le décor est encore gothique en 1538.

L'hôtel maintes fois remanié au cours des siècles et transpercé d'inquiétantes lézardes et fissures, était resté de longs mois dans l'attente d'un acquéreur au moment de sa vente en 1990 à une société immobilière. Après une année d'études et deux années de travaux de consolidation et de restauration, l'édifice renaît aujourd'hui. L'hôtel de Vaux est situé dans le secteur sauvegardé de la ville du Mans ; l'ampleur et la qualité des travaux entrepris trouvent leur origine dans un montage opérationnel réalisé dans le cadre de la loi du 4 août 1962 sur les Secteurs Sauvegardés (loi "Malraux"). Cinq appartements y occupent aujourd'hui une superficie au sol de près de 900 mètres carrés.

Histoire

L'hôtel actuel est construit en 1543 dans le goût de la Renaissance. De la fin du XVIe siècle à 1926, il fut divisé en deux logis qui furent réunis à cette dernière date par Jules Hervé-Mathé, peintre manceau. Les principaux remaniements datent des années 1750. L'hôtel conserve dans ses soubassements et son jardin un souterrain et un puits qui appartiennent au système défensif du Bas-Empire.

L'hôtel se compose de deux corps de logis disposés en équerre, reliés dans l'angle de la cour d'honneur par une tour polygonale qui renferme un escalier à vis. On accède à la cour pavée par un portail de style Renaissance et par un deuxième portail plus tardif (fin XVIe) décoré de pilastres cannelés qui supportent un arc en plein cintre dont les vantaux XVIe sont conservés. Les façades sur la cour d'honneur sont percées de croisées superposées, qui portaient encore, avant les travaux de restauration, les traces de meneaux et de traverses en pierre aujourd'hui rétablis.

Dans un acte de location de 1690, une note signale qu'une partie des croisées était encore garnie de vitres en plomb. Les deux lucarnes qui surmontaient les croisées de cette façade avaient disparu, mais leurs traces étaient bien lisibles dans la charpente et les maçonneries du mur de façade.

Dans le petit pavillon en avancée sur la cour, les baies rectangulaires à linteaux et piédroits appareillés sont caractéristiques des travaux du XVIIIe siècle.

La façade sur le rempart avait conservé au niveau des caves les petites ouvertures d'un premier hôtel de style gothique. Aux étages d'habitation, les grandes baies à simple chanfrein portaient les traces des meneaux et des traverses en pierre supprimés lors de la campagne des grands travaux de modernisation de l'hôtel en 1750. Les allèges avaient été abaissées pour transformer les vieilles croisées en portefenêtres et les linteaux avaient été remplacés par endroit par des linteaux clavés à crossettes.

Dans l'aile perpendiculaire au corps de logis principal, également constituée de deux étages surmontés d'un haut comble en pavillon, les baies de la façade sur le jardin se superposent sans régularité.

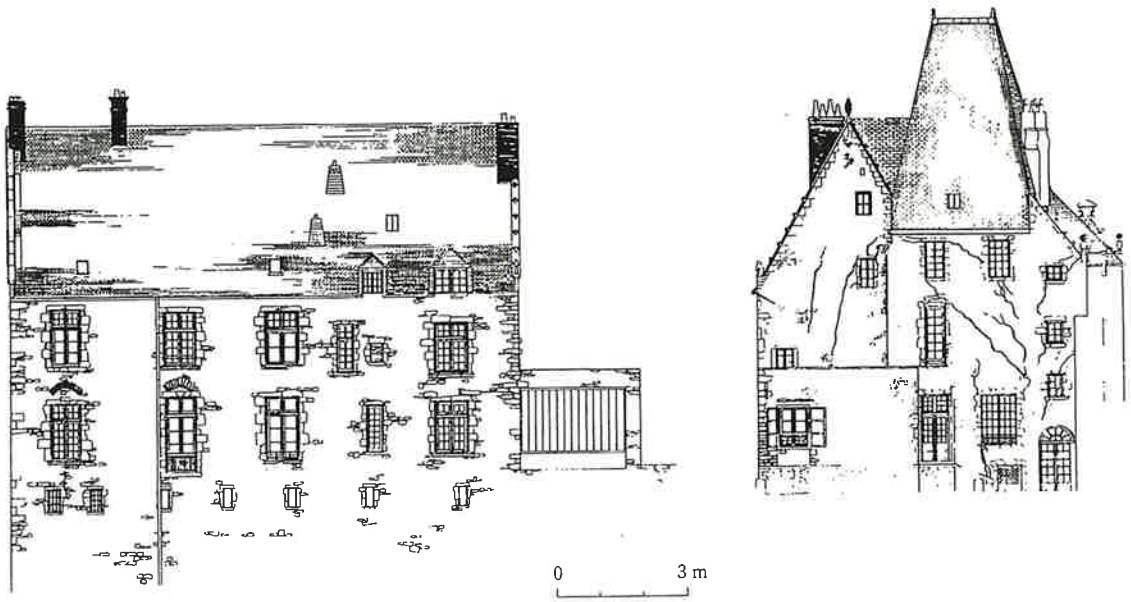


Fig. 1. Façade sur la Sarthe et façade sur jardin avant travaux, en 1989

Au XVIIIe siècle, les anciens pignons avaient été repercés de deux baies et d'une porte fenêtre ouverte sur le jardin. Le petit bâtiment en avancée sur le jardin conservait une porte fenêtre de cette campagne de travaux de transformations et de mise au goût du jour. Le décor peint retrouvé dans la salle entre cour et jardin semble bien être une création de cette période. Ce décor de caractère naïf, peint à la détrempe, présente de grandes scènes champêtres en tableaux, dans une architecture rythmée de hauts vases peints en grisaille. Trois scènes aux champs sont parfaitement conservées et sur la tour polygonale de l'escalier qui pénètre dans la salle peinte une élégante demeure et son jardin sont présentés en perspective.

Fig. 2. Cour intérieure avant travaux

Diagnostic établi en 1989

L'hôtel de Vaux présentait en 1989 un état sanitaire très alarmant. Les désordres se manifestaient par de très larges et profondes fissures verticales dans les murs de façades et les refends. Les maçonneries de moëllons de schistes étaient désorganisées, le mortier de liaison en chaux et sable était pulvérulent en maints endroits.

La façade sur jardin, dont l'enduit de chaux et de sable était devenu très friable, présentait des fractures importantes. Une partie de la façade était enfoncée de trente centimètres dans le sol.

Les relevés et l'observation des nombreuses fissures sur les façades, ainsi qu'à l'intérieur sur les murs de refends à tous les niveaux, indiquaient des tassements différentiels. La déclivité des linteaux des baies et des sols atteignait jusqu'à trente cinq centimètres.

L'observation de l'évolution des fissures sur plusieurs années à l'aide de témoins (plaques de verre) avait montré que le mouvement général observé dans les maçonneries était essentiellement dû au fait que l'édifice était bâti directement sur le rempart du côté de la rivière et sur une couche d'épais remblais vers la rue. Lors des travaux de modernisation au XVIIIe siècle, les refends avaient été perçés de portes contre le mur de façade vers la Sarthe pour créer une circulation en enfilade.

On savait par ailleurs que les hôtels alignés sur le rempart avaient souffert de l'effet des bombardements du pont sur la Sarthe pendant la dernière guerre. Les années

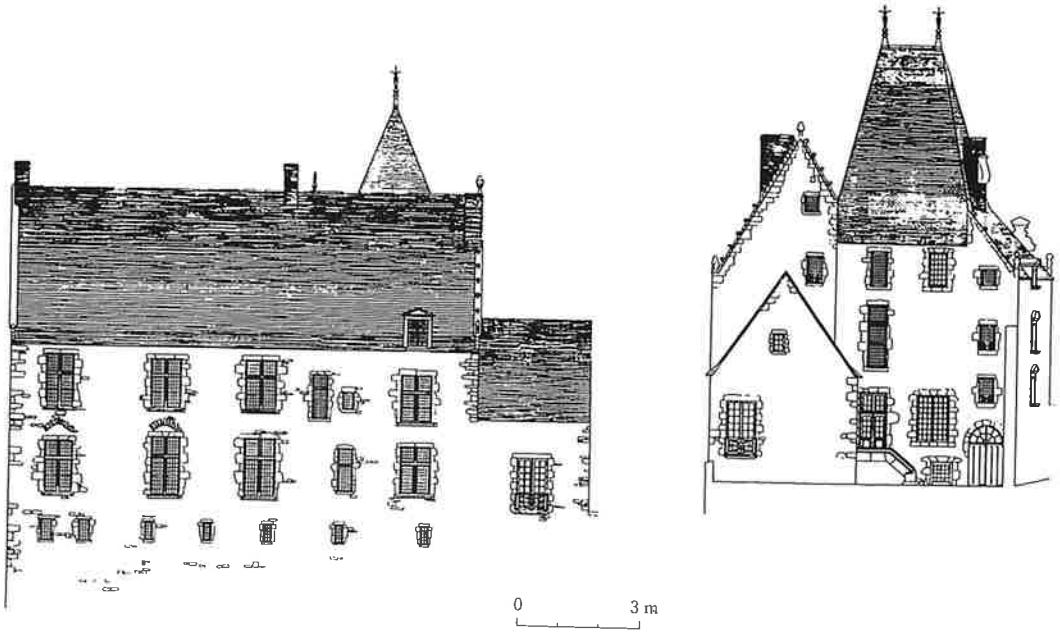


Fig. 3. Facade sur la Sarthe et façade sur le jardin aprés travaux, en 1993.

successives de sècheresse, et la mise en oeuvre d'un réseau urbain d'assainissement avaient asséchés les profonds remblais sur lesquels étaient fondés ces édifices.

Sur la muraille et la tour Saint Hilaire, les mouvements visibles dans les bandes de décors géométriques des parements gallo-romains témoignaient de mouvements anciens de grande ampleur.

Les travaux intérieurs permirent de vérifier l'ancienneté des mouvements. Le dégagement des cheminées sur le pignon mitoyen avaient fait apparaître un décor de faux marbre de style XVIIIe, appliqué sur le remplissage situé entre le trumeau incliné et le plafond de poutres et solives.

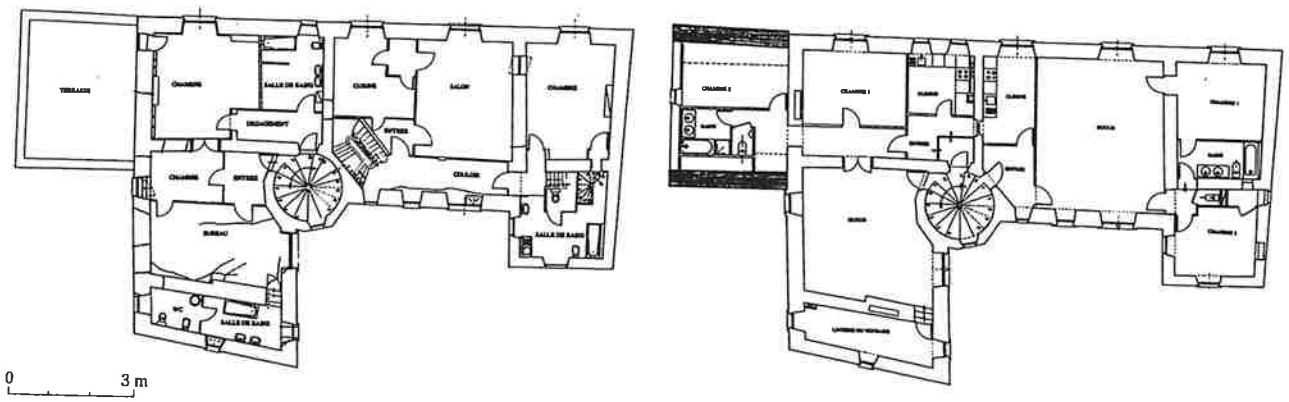
Les travaux de consolidation et reprises en sous-oeuvre

Dès 1983, l'évolution des fissures observées sur les murs extérieurs et l'escalier à vis avaient justifié la mise en place de témoins et à partir de 1987 une série de sondages pressiométriques avaient été commandés au Laboratoire du Centre d'Etudes Techniques du Bâtiment de Rennes[2].

Les résultats mirent en évidence la très faible résistance des couches de remblais à côté du rempart gallo-romain et à partir de cette étude était confirmée l'insuffisance de la capacité porteuse des fondations par rapport aux charges calculées. Cette insuffisance pouvait justifier le tassement différentiel des murs porteurs.

Fig. 4. Plan du ler étage avant travaux.

Fig. 5. Plan du ler étage après travaux



Les maçonneries bâties sur les remparts constituait un point rigide, tandis que le reste du bâtiment, fondé sur des terres compressibles, s'était enfoncé de façon variable depuis l'assèchement du sol par la mise en place des réseaux urbains, en créant des points de ruptures qui se matérialisaient par de profondes fissures à travers tout l'édifice.

La reprise en sous-oeuvre de l'ensemble des murs de l'édifice au niveau des fondations, la mise en oeuvre de planchers métalliques, exceptionnellement en béton armé, et de chaînages périphériques pour ceinturer les maçonneries à chaque niveau, s'avérait indispensable.

Les résultats avaient permis de conclure à un niveau de charges admissibles limité à 6 tonnes par mètre linéaire au niveau bas des fondations, situéur peu en dessous du niveau des caves à l'exception d'une zone de 3 mètres et demi de large, là où l'édifice était fondé sur le mur d'enceinte[3].

La solution de reprise en sous-oeuvre par micropieux travaillant de manière moindre, principalement en effet de pointe et en frottement latéral, a été employée pour ses facilités de mise en oeuvre dans les espaces restreints des sous-sols.

Les 110 micropieux qui descendent entre 18 et 20 mètres de profondeur, ont été placés par batteries sur des longrines en béton armé réparties selon la charge calculée sur les murs porteurs (entre 10 tonnes et 42 tonnes par mètre linéaire).

Le matériel de forage et d'injection a été adapté aux mises en station dans des conditions d'accès extrêmement difficile et sans altérer la cheminée et le four à pain du sous-sol gothique qui ont été intégralement préservés.

La restauration

Pour la restauration de l'hôtel de Vaux, le parti retenu a été de privilégier les deux époques de construction et d'aménagement les plus importantes pour l'édifice, confirmées par les dates de 1543 et de 1750.

Les ajouts ou modifications, qui constituaient une gêne importante pour la lecture de l'édifice et son authenticité, postérieures au XVIIIe siècle ont été supprimées, en particulier quelques lucarnes en bois du XXe siècle. Deux grandes lucarnes en pierre dont l'absence était ressentie comme une véritable amputation furent restituées. Les petites lucarnes et petites baies à frontons, qui avaient conservé leurs menuiseries du XVIe siècle servirent de modèle pour le dessin des frontons.

Les baies et lucarnes de l'hôtel du XVIe siècle ont été restaurées selon leur état antérieur aux modifications du XVIIIe siècle, les meneaux, les traverses et les menuiseries XVIe avec vitrerie en plomb, ont été rétablis.

Les corps de bâtiment ajoutés ou modifiés au XVIIIe siècle ont été conservés et restaurés. Le pavillon carré, en avancée sur la cour, a été couvert d'un comble, éclairé sur le côté par une petite lucarne en bois.

Sur les façades du corps de bâtiment ajouté dans le jardin au XVIIIe siècle, la toiture à deux versants et les baies XVIIIe ont été rétablies. Le peintre Jules Hervé-Mathé qui avait installé son atelier dans le jardin avait mis en oeuvre une grande baie industrielle qui fut supprimée lors des travaux de restauration.

Les enduits anciens ont pu être conservés sur les hauts pignons gothiques du jardin et sur l'étage de la cour d'honneur.

A l'intérieur de l'hôtel, des sondages avaient révélé dans l'escalier à vis l'existence de portes anciennes de communication entre les salles des ailes en équerre à chaque niveau. Ces portes d'accès, qui desservent aujourd'hui les appartements aménagés dans le cadre du projet de réutilisation global de l'édifice ont été équipées de menuiseries neuves, copiées sur un modèle trouvé dans l'hôtel du Grand Veneur à Laval construit à la même époque. Les portes du Grand Veneur présentaient un motif décoratif et des profils identiques à ceux des panneaux pleins des fenêtres des lucarnes XVIe de l'Hôtel de Vaux.

Toutes les portes intérieures ont été récupérées sur place et parmi les soixante portes déposées lors des travaux de démolition des cloisonnements tardifs une trentaine antérieures au XIXe siècle ont été réutilisées.

La distribution intérieure des locaux a été totalement repensée pour retrouver l'esprit du logis Renaissance et de grandes salles à double orientation ont pu être restituées. Les combles auxquels on accède depuis les pièces principales des logements ont été aménagés grâce à l'existence de petites fenêtres dans les hauts pignons gothiques. Au fil des siècles l'édifice avait été recloisonné et ses murs avaient été doublés de décors partiellement lambrissés pour masquer les fissures apparues dès le XVIIIe siècle. La dépose de ces décors peu intéressants, nécessitée par la consolidation et le "remaillage" des fissures a laissé apparaître la nature des enduits d'origine sur mortier de chaux, de finition lissée.

Les sols en terre cuite de format 14,5x14,5 ou 11,5x 11,5 proviennent du dépôt d'un récupérateur de matériaux anciens. Les enduits intérieurs de finition lissée, colorés par le sable de roussard, ont une belle tonalité ocre très soutenue.

Dans un souci d'économie, les enduits de certaines pièces ont été réalisés au mortier de plâtre gros et sable fin de couleur rouge ou jaune. Sur le torchis de remplissage des murs à pans de bois dégagés lors des travaux, la pellicule d'enduit a été remplacée par un enduit au plâtre et sable.

Tous les plafonds à poutres et solives ou les linteaux des fenêtres en chêne des ouvertures intérieures ont été légèrement chaulés.

Dans la pièce du rez-de-chaussée, les scènes peintes qui ont été dégagées et restaurées se détachent discrètement sur les enduits de tonalité ocre jaune. Au cours des travaux, des scènes champêtres de syle XVIIIe siècle ont été découvertes. D'une facture naïve, elles sont présentées comme des tableaux portés par une architecture savante dans laquelle les rythmes sont donnés par de grands vases ou pots-à-feu peints en grisaille comme la haute corniche de rinceaux qui court sous le plafond à poutres et solives. Dans cette salle, la grande cheminée Renaissance a été restituée â l'Abbaye de Saint-Cincent située à proximité, en raison de la parenté évidente entre les consoles des poutres de l'Hôtel de Vaux et celles du linteau de la cheminée du logis de l'Evêque.

Notes

1. La cité historique du Mans se présente aujourd'hui comme une ville dans la ville, limitée par une fortification du Bas-Empire (280-310) d'une importance exceptionnelle dont la hauteur atteint huit mètres sur le front de la rivière. Cette enceinte valut au Mans le nom de Violle Rouge qu'elle partageait avec Bourges, Limoges et Lyon jusqu'au haut Moyen Age.

2. Entre 1987 et 1990 une série de sondages manuels et pressiométriques avaient été commandés au C.E.B.T.P., trois dans la cour d'honneur, un dans le jardin, un dans la rue devant le mur de l'aile en retour et deux dans les caves, selon le principe d'essai de chargement in situ réalisé dans un forage calibré à l'aide d'une sonde dilatable radialement dont les déformations volumétriques sont lues sur un appareil de mesure.

3. A la lecture des résultats, le C.E.B.T.P. préconisait la mise en oeuvre de micropieux d'une longueur moyenne de 15 mètres linéraires disposés symétriquement sur une série de longines perpendiculaires aux murs de fondations. Le 5 mars 1991, un premier micropieux d'essai contrôlé à l'aide de vérins hydrauliques aurait dû donner des résultats satisfaisants aux essais de chargement. Il s'agissait d'un essai de traction exercé par vérin sur la barre Gewy (acier cranté d'un diamètre de 40 mm), avec mesure des déplacements par un comparateur en partie haute du vérin. Le micropieux avait été ancré dans les sables alluvionnaires sur une longueur de 7 mètres. Au-delà du 4e palier il fut impossible d'appliquer l'effet de traction et un autre essai fut pratiqué sans plus de succès.

Un deuxième bureau d'études fut alors chargé de vérifier les études de sol et de réaliser deux sondages à 25 mètres de profondeur, au-delà des remblais argileux.

Les essais se révélèrent concluants avec l'emploi de pieux d'un diamètre de 15 cm armé d'une barre Gewy d'un diamètre de 49 mm. La limite élastique était fixée à 98 tonnes. Les coulis de ciment sans bentonite (1200 kg par m3 de coulis) devaient résister à 300 bars après 28 jours. Les essais de traction réalisés avec succès à l'aide de vérins creux sur un appui constitué de deux profils IPN, avaient été calculés pour résister à 80 tonnes.

Un deuxième pieu d'essai fut réalisé en situation (pieu no. 43) avec montée en tension par paliers de 5 tonnes pour reprendre une charge de 20 tonnes (longueur du micropieux : 14 mètres, section de la barre Gewy 1256 mm2, traction à la limite élastique 62 tonnes).

METHODOLOGY, TECHNOLOGY

Methodological Studies on Inventorying the Cultural Heritage within Cultural Landscapes

Hans Peter Jeschke

1. International Framework

Introduction

International organisations have undertaken laudable efforts to protect cultural and natural monuments, so that cultural values may increasingly be recognised as universal: every culture represents an expression of generally accepted values. Dialogue between international, national and regional cultures can be founded not only on the recognition of these values, but also on the common basis that they offer the heritage for mutual acceptance, appreciation, and preservation and allow the further development of creative powers. Cultural along with ecological factors are gaining ever more significance and are becoming a central motive in designing, planning and developing the confines of our environment.

Definitions of Cultural Landscapes

Cultural landscapes represent the "combined works of nature and of man" designated in Article 1 of the World Heritage Convention. The revised version of the Operational Guidelines for the Implementation of the World Heritage Convention (UNESCO, 1994) defines three categories of cultural landscapes and deals with "geo-cultural regions" and their essential, distinct elements (chapter 36). "Cultural landscape" embraces therefore the manifestation of diverse interaction between humankind and its natural environment (chapter 37).

Categories of Cultural Heritage

The latter convention defines (Article 1) three categories of cultural property:

monuments, groups of buildings, and *sites.*

These types of cultural property are not isolated within a landscape but rather an integral part of it. For maintaining the historical, cultural and art-historical expression of buildings and their environment, it is therefore necessary to introduce *surrounding zones* ("buffer zones") as an additional category.

These zones would be an integral part of the category under preservation and consist of either undeveloped areas such as open spaces, farmland and vineyards, of areas with structures belonging to the original ambience. The third category, "sites", and the category of surrounding zones are directly relevant to defining and mapping cultural landscapes; i.e. works of man (or combined works of nature and man) and areas including archaeological sites which are of outstanding historical, aesthetic, ethnological, and/or anthropological interest.

Natural Properties

Article 2 covers natural properties. Again, three categories have been defined:

* physical and biological formations.
* geological and
* physiographical formations, natural sites and precisely delineated natural areas of outstanding value.

2. Legislation, Preservation and Initiatives of Current Interest Concerning, Cultural Heritage and Cultural Landscapes in Austria

Austrian Cultural Landscape and Heritage in the International Framework

Austria has signed and ratified the Berne Convention on the Conservation of European Wildlife and Natural Habitats. Austria is also a member of the Council of Europe, and a signatory to the Convention for the Protection of World Culture and Natural Heritage (World Heritage Convention).

Austrian Legislative Background

Although matters of nature preservation in the Federal Republic of Austria are placed under the jurisdiction of each of the nine provincial goverments (Länder), protection of

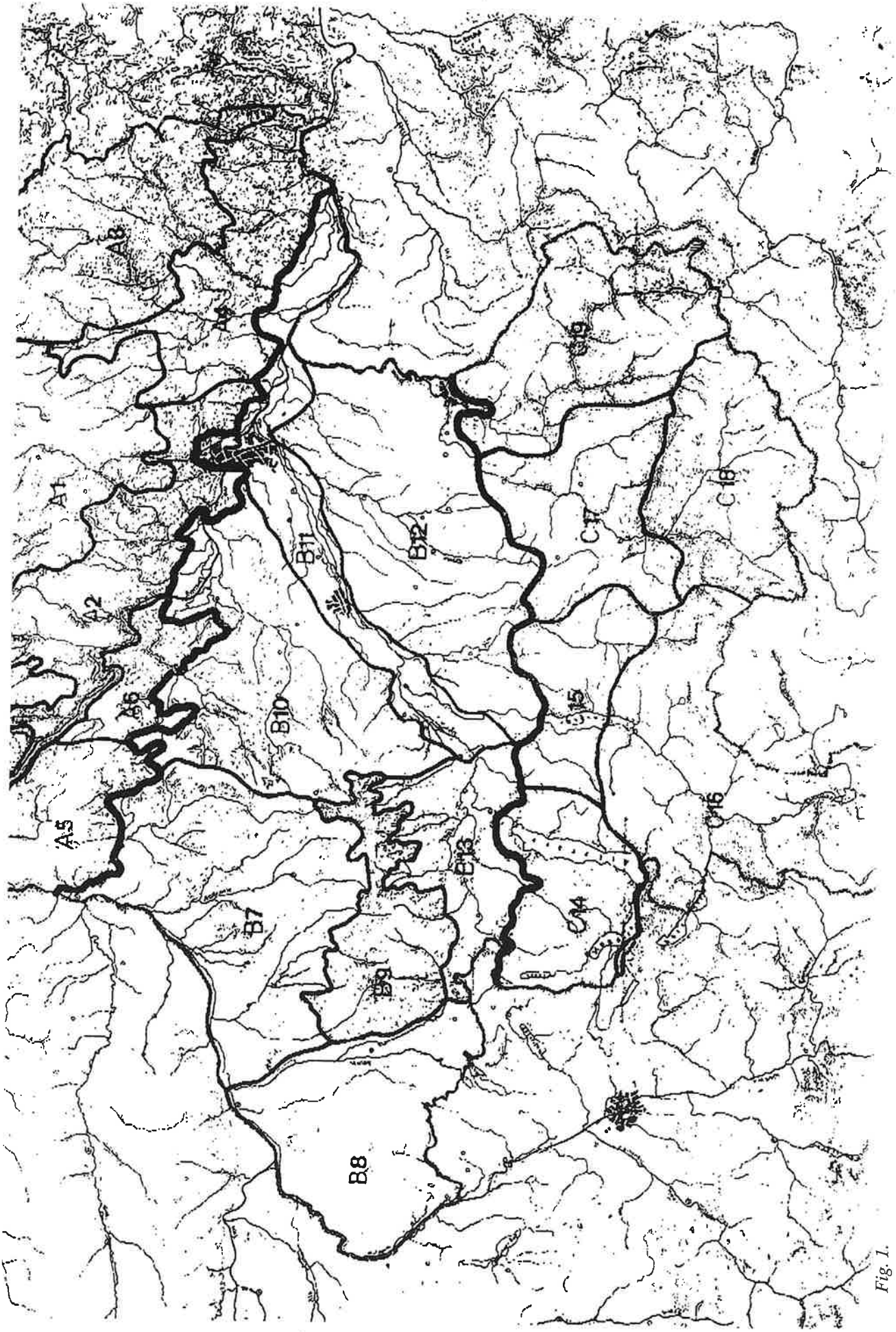


Fig. 1.

cultural heritage (concerning monuments and ensembles) is under the federal legislation. In addition to "monuments" (and groups of buildings of architectural historical interest in rural sites), it is also necessary to protect modest works which have gained cultural significance over time. To supplement the protection provided primarily to individual movements by the federal legislation, the governments of the Länder and of several Austrian cities and communities have developed legal, financial and planning measures to promote townscape care (Stadt - und Ortsbildschutz) and to preserve rural sites and historic town centres.

Inventories

Two provinces (Salzburg und Upper Austria) have already introduced landscape inventories. Besides other activities at the federal level a part of the Austrian cultural heritage is already being documented by a federal monument register and in two provincial registers. Upper Austria has produced a Comprehensive Cultural Heritage Register (Umfassender Kulturgüterkataster), while Tyrol has developed a Kunstkataster.

Austrian Comprehensive Cultural Landscape Research Programme

The Federal Ministry for Science and Research initiated a comprehensive cultural landscape research programme entitled "Sustainable Development of Austrian Cultural Landscapes" with emphasis on aims and objectives. This programme is now being implemented and covers several methodical projects and case studies.

3. Upper Austrian Project on Mapping Cultural Heritage and Cultural Landscapes

The methodological objectives in Upper Austria's Project on Mapping Cultural Landscapes can be described as follows:

It was necessary to harmonise methods to identify cultural landscapes on national, regional and local levels. The definition of the comprehensive landscape units (geo-cultural regions) according to national and international guidelines was intended to complement the description of their specific "identity" (cultural landscape types, cultural landscape elements and the cultural heritage).

Goals in Planning

In their relationship with regional planning, landscape planning, and other instruments for maintaining and preserving cultural landscapes, three important aspects of cultural landscapes need to be assessed in the context of developing planning policies:

a) Sites present within landscapes; sites do not exist in isolation, and site-oriented planning policies require revision so as to include elements of landscape sensitivity;

b) The cultural landscape exists in both urban and rural areas: while different planning problems exist in urban and rural areas, it is essential to recognize the importance of the cultural landscape in both; and

c) the need for a scale-sensitive framework: planning policies need to be sufficiently flexible so as to allow interpretation of the cultural landscape at a range of scales.

Contents of the Upper Austrian Study

For Upper Austria, 19 comprehensive cultural units were methodically developed according to nationally executable criteria on the geo-cultural model. These units are assigned primarily to:

* the Bohemian massif - the granite and gneissic highlands (units Al - A6);
* the Alpine forelands (units B7 - B13); and
* the northern Alpine area (units C14 - C19) (Fig. 1.).

Description of these units proceeded according to the following criteria:

- ecological landscape classification (cultural landscape types) together with botanic and zoological aspects:
- structural elements close to nature (cultural landscape elements such as biotops, rural orchard etc);
- to describe the interaction of "man and landscape", the

Fig. 1. Cultural landscape units in Upper Austria (Maurer, 1994). This map covers the geo-cultural landscape units in the context of the cultural landscape regions:

A - Bohemian massif (granite and gneissic highlands), B - Alpine forelands and C - northern Alpine area.

In the Bohemian massif, an underdeveloped rural region with 6 cultural landscape units (Al - A6) are living approximately 17 percent of Upper Austria's population. The most important economic regions are situated in the Alpine forelands (7 landscape units), approximately 72.1 percent of the population.

The northern Alpine area, with its 6 cultural landscape units, is the most important area for recreation and tourism (for instance the outstanding cultural landscape of the Upper Austrian part of the "Salzkammergut" (C14,C15, and C16), and has a population quota of 10.9 percent.

results of the Upper Austrian study for mapping the resources of the natural environment were used, (i.e. landscape dependent on recreation potential, fertility potential of soil and forestry, water system potential and raw materials potential;

- agriculture future, including aspects and objectives of agrarian and landscape planning;

- spatial planning (NUT - regions), including the Convention for Alpine Preservation, to reinforce and promote a comprehensive cultural landscape policy by these planning and preservation instruments;

- rural settlements and vernacular architecture transcend to historical descriptive elements of regional study;

- a socio-economic regional classification of local government units and

- depletion of population development offers indications of endogenous development potential in the different cultural landscape units.

Inventorying the cultural heritage was exemplified by rural and urban studies based on the landscape - oriented mapping and evaluation method. The systematic compiling and dissemination of a basis for information available is exemplified by the information system Comprehensive Cultural Heritage Register and Built-On Sites (Umfassender Kulturgüterkataster), the Upper Austrian Map of the Resources of Natural Environment together with the Upper Austrian Landscape Inventory.

Cultural Heritage

The cultural landscape-oriented mapping of rural cultural heritage at a regional level

* was used, on the one hand, as a descriptive element, and

* as criteria for categorising cultural landscape units, on the other hand.

The need for a scale-sensitive framework led to a method of spatial (cultural landscape-oriented) inventory of the cultural heritage at the local level according to international criteria and a comprehensive evaluation system (Fig.2) with different criterias (spatial merit, architectural and historical merits, significance) and ranges of cultural heritage.

The method used in Upper Austria described below is based on a survey of the various constituents of built-on site which can be perceived, demarcated and described as units in the present state of the town or village in question. Demarcation is based on three criteria:

* *units deriving from historical periods of growth or from characeristics peculiar to the region,*

* *units with morphological or spatial features in common,*

* *units requiring identical protection.*

It is not always easy to reconcile the three criteria of history, geography and protection when defining areas, ensembles and surroundings. The area represented on a plan frequently results from priority having been given to one of the three criteria and in some instances a balancing of the three factors could lead to the boundaries being shifted slightly (Heusser Keller 1982).

Spatial Units

To establish a comprehensive cultural landscape policy, it was necessary to portray the instrumental measure for preserving, maintaining, and developing these comprehensive cultural landscape units (especially in agriculture, landscape planning and spatial planning). In order to allow the integration of the goals mentioned above (i.e. the relationship of cultural landscape units) to the regions of the Austrian land-use planning system, the cultural landscape units were depicted according to the international NUT-regions of the European Community (Nomenclature des unites territoriales statistique), the target areas according to the EC's structural fund, and spatial units of the Convention for Alpine Preservation.

Forecasting

In this framework, the first-time introduction of a socio-geographic categorisation of local government units (according to the latest methods) was used to indicate regional endogenous potential in cultural heritage units. The depiction of the relationship between farmers (current status and prognosis) and the different cultural landscape units hints at the present and future problems in cultivating that landscape. Finally, environmentally relevant pedagogical aspects (and materials for converting these results into usable teaching materials and appropriate museum items) are outlined.

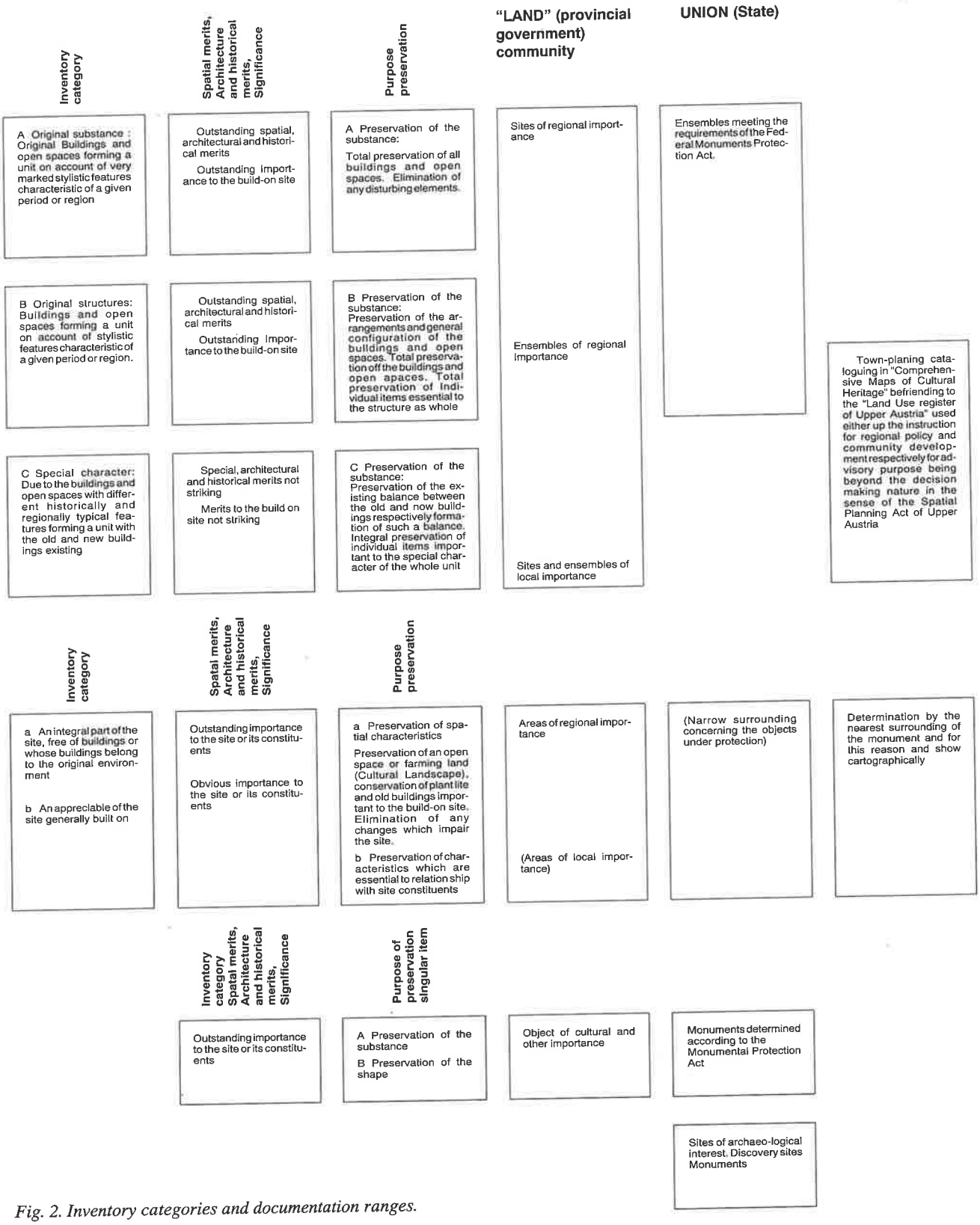


Fig. 2. Inventory categories and documentation ranges.

Cataloguing and documenting the range of cultural heritage within a regional cultural research program according to the requirements of both the Upper Austrian Built-On Sites Act and the Physical Planning Act, resulting in the "Comprehensive Register of Cultural Heritage and Built-On Sites" (Jeschke 1974, Heusser-Keller 1979, 1982 (a valuation framework), and Council of Europe 1966 and 1979).

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Inspection, Recording, Monitoring - procedures for inspection and assessment of fixed timber pilings in a marine environment

Scott Cunliffe

The methodological description that follows was developed specifically for the Gulf of Georgia Cannery National Historic Site in British Columbia, Canada, but the principles and approach are applicable to most timber structures in a harsh marine environment. This particular "Cannery", situated just south of Vancouver, is a fine example of many such massive timber structures built along the pacific coast of North America during the latter part of the nineteenth century.

The inspection, assessment and reporting methods are intended to provide a defined, consistent, and cost effective set of procedures, to a level of detail that will document information sufficiently to signal the need for future repairs, maintenance needs and monitoring requirements of the substructure. There are more than 600 timber piles supporting the building complex, thus requiring well organised and systematic inspection and recording. These procedures were performed in order to generate the "plan of maintenance (short and long-term)", and an indicative bill of quantities for a staged "repair, maintenance and monitoring strategy"

The sub-structure of the Cannery provides the 'underpinning' or structural footing to the entire wooden structure. It must therefore maintain a high priority in terms of care, maintenance and condition monitoring. The future of the historic resource literally rests on wooden pilings. These pilings (originally cedar) are subject to the forces of natural and man-made physical decay.

The following guidelines describe a survey and analysis methodology for the current "survey and repair analysis" (SARA), and for the future monitoring and maintenance of the substructure. Specific design solutions will require further site maintenance works.

These procedures have been developed specifically for the Gulf Georgia Cannery National Historic Site, in accordance with a recent Report for the Government of Canada, "Procedures for Inspection and Assessment of Fixed Timber Docks" 4th Edition, September 1994 Canadian Coast Guard, Harbours and Ports.

1. Introduction

1.1 *Scope*

The scope of inspections is limited to the portion of the structure above the low-water mark or the mud-line, whichever is higher. Conditions that indicate likely problems below the low-water mark or the mud-line should be highlighted, but the complete engineering assessment of the timber pilings below low water are beyond the scope of this survey-and-repair-analysis. All accessible piles were to be inspected in accordance with the procedures outlined below. Inspection duties related to contract compliance and administration (during any future new construction for instance), are beyond the scope of this document.

1.2 *Documentation Needs*

One crucial prerequisite to the success of procedures to follow, is a system of numbering, mapping and recording individual piles. Each pile is given a letter and a number responding to grid-rows running north-south and grid-rows running east-west. Piles outside the grid, if different from the regular grid pattern, were different numbered accordingly with double letters or numbers according to their approximate placement. This information became the individual identifier for each pile (for example, A 24 would be a pile along one edge of the structure, twenty-four rows in).

The consequent database (see accompanying sample data sheets) can be searched on any of the fields described in the data sheets. In this instance there is no immediate need for a relational database, and the simplicity of working with a very basic system of design and software meant that the data sheets could be accessed in future by relatively unskilled operators and therefore easily maintained and updated.

Due to the scale of the structure and the need to record up to a thousand individual items, computerisation is a necessary tool. Final CAD drawings share corresponding information contained in a database which was generated on a

Macintosh using Claris File Maker Pro software. The data sheet took around two hours to design and prepare the initial draft. It was changed several times during the period of data entry and analysis.

A small index card book with the pages cut vertically in half is used as an indexing tool during the copious photographic recording. One side of the small spiral-bound booklet is marked A to Z on each page and the other side is marked with numbers. The pages can then be flipped around to form the correct combination of letter and number to identify the member. Therefore each photograph includes in the image the piling or member number for identification that corresponds to the database identification number and drawing convention.

Other on-site recording tools include A3 size clipboards with attachment straps, permanent markers and drawings divided into A3 pieces for sequential recording. All drawings are pre-marked into sections and a copy of conventions or symbols to be used in the recording exercise is protected in a waterproof jacket. Other specific documentation needs are described in the relevant inspection procedures below.

1.3 *Reasons for Inspection*

This is the first comprehensive inspection of the pilings for almost ten years, since repairs were made in 1986. Extensive documentation has been prepared based on the drawings from 1986 and updated during the survey to complete a set of drawings in 1995. The objective is to provide concise and up-to-date drawings for future inspections and repair work.

It is understood that the 1986 inspections were largely based on visual assessments and did not involve test drilling or coring for verification. As part of this assessment, random drilling is undertaken to physically verify the condition and integrity of the structural members. All test bores are refilled with oversized (for a tight fit) preservative-treated dowels. Results are correlated according to specific needs of

(a) required within 1 year;
(b) required every 2 years;
(c) required within 10 years.

1.4 *Special Inspection due to Report of Accident Damage or Incident*

When accidental events occur, or an unusual condition is reported or suspected, an immediate inspection is required to assure protection of the remaining asset, and to establish the cause of the incident and the necessary repair needs. Special inspections of this nature cannot be scheduled in advance but must take priority.

1.5 *Special Inspection due to Change of Use or Requirement for Physical Alterations*

A change of use or loading conditions requires an assessment to ensure that the new conditions, not provided for in the original design, can be accommodated. Adequate notice of future plans will enable Parks Canada to schedule the necessary inspection or assessment to provide advice regarding the proposed change and necessary renovations if required. A change of use, involving increased loads or construction of alterations, must always include an assessment by a professional engineer.

1.6 Construction Inspection

As the adaptation and development of the Cannery proceeds, it may be necessary to include documentation of the 'as-built' condition to maintain the database for future inspection and maintenance. During any construction phases on the future, the necessary inspection duties related to contract compliance and administration are beyond the scope of this document.

2. Inspection Procedures

2.1 *Introduction*

The various inspection procedures described below are based on the inspections defined in sections 1.1, 1.3, and 1.4 above. Engineering judgment is required to define the scope of a specific inspection, particularly if it differs from the initial or comprehensive inspections.

The inspection includes building components between the mud line (MDL) and the flooring. (see the three dimensional sketches of the building substructure included in Section 2.3 Verification of Arrangement and Type of Structural Components). Sufficient time should be scheduled to examine the structure at high tide (as necessary to inspect pilecaps, decking etc.) and at low tide to access the lower bracing connections. Appropriate dates for the inspection are scheduled to ensure that the required tidal variation is achieved.

2.2 *Pre-Site Work*

All available design, construction and inspection/assessment documentation is reviewed. Inspection is thus treated as an ongoing process using the full range of relevant resources previously compiled.

Background documentation for this assessment includes:

* conservation and maintenance plan standards (March 1993);
* previous inspection reports;
* description of past, present and anticipated future use and performance;
* design calculations, drawings and construction specifications;
* construction inspection reports;
* geotechnical reports;
* "as-built" drawings (if available);

Preparations also include familiarisation with the physical situation, including details of access to all parts of the structure, tidal references, and past inspections reporting deviations from the drawings. The numbering system devised in the 1995 comprehensive inspection should be maintained and used in future inspections. As far as possible this system follows the 1986 numbering system with the addition of new information as observed and verified during the inspection process, and the designation of sudstructure zones.

2.3 *Verification of Arrangement and Type of Structural Components*

This activity is performed to verify that layout, structural members and connections are as described on the drawings, or to identify specific alterations. There are a number of inaccuracies on earlier drawings that should be revised during the 1995 comprehensive inspections.

Special attention is paid to connectors, nuts and washers etc. Where adequate drawings are available, verification should be made by spot-checking a few key and/or representative members and connections. Unless doubts are raised, the drawings are then accepted as accurate.

2.3.1 *Wood Grades*

Wood grades are difficult for a nonspecialist to determine once the wood has been treated. All the 1986 replacement members are preservative treated (Creosote). It appears that the original pilings are cedar and pilecaps are coast Douglas fir. It is assumed that # 1 grade was used throughout the original construction. It may be necessary to employ a professionally qualified lumber grader if and when replacement design is necessary.

Factors that adversely affect the strength of wood and are observable in the field include the following:

* end splits;
* abrasions;
* holes;
* notches.

The observed information is recorded on the drawings where either of the above factors require specific and regular monitoring or remedial action.

2.4 *Types of Damage or Decay*

There are three predominant types or categories of damage in the Cannery substructure:

* physical damage;
* damage due to natural decay or fungal attack;
* damage due to marine borers.

The 1995 inspection investigates signs of these three types of damage or decay as described below. Access may be a limiting factor. Each (accessible) member with some decay or damage has been identified and recorded on the pile plan. The combination of visual inspection, hammer blows and drilling provides an efficient way to get a picture of potential decay problems. Some timber in the intertidal zone will need to be scraped to clear marine growth in order to hammer the surface or obtain access for drilling (see damage detection methods below). Marine growth helps protect pilings from borers and should not be removed except where absolutely necessary.

2.4.1 *Assessing Physical Damage*

At the Cannery, the types of physical damage includes:

* abrasion by floating debris, vessels, ice;
* broken pilings and bracing due to impact and floating debris;
* decking and other superstructure elements damaged by overload, impact, collision, chemical damage or wear and tear;
* damage during construction or repairs due to poor field practices or site supervision.

Tools

A short list of necessary tools for assessing physical damage includes:

* head-lamps and other high-intensity lighting devices;
* measuring equipment (flexible tape for diameter measurements);
* a procedure for recording notes (surveyor's note-

book, portable recording device, camera and flash etc.)

Documentation

Physical assessment documentation is intended to provide a comprehensive record of the current structure and evidence of physical damage or weaknesses. It is a recording system starting with earlier drawings to provide the basis for the updated 'as found' or 'as-built' drawings for easy future use and reference. The main types of documentation includes:

* physical damage is carefully described and photographed, located and recorded on the "as-built" plan;
* photographs need to include in the image the piling or member number for identification (see 1.2 Documentation Needs);
* the apparent cause of physical damage is noted along with the reasons for the conclusions made;
* while inspecting for physical damage, any notable construction errors that require correction or other inconsistencies are duly recorded.

2.4.2 *Assessing Decay*

Decay due to fungal attack may be visble on the exterior of some wood, but is more likely hidden and can be surprisingly extensive before it appears on the surface. Fungal growth, and consequent fungal decay, will occur wherever oxygen and moisture provide the environment for propagation and growth.

The likely places for decay include:

* at ends of decking, stingers, pilecaps, and pilings where field cuts may have occurred or where end checking has breached the protective skin of creosote;
* locations that have opened up due to checking;
* connection regions where holes provide entry for air and moisture;
* where end-grain butts against side-grain (end-framing connections and tops of pilings are likely locations for this);
* where any wood member is supported over another (stringers upon pilecaps for instance, or corbels upon pilings which is common in the Cannery).

Tools

The list of useful equipment includes:

* head-lamps and other high-intensity lighting devices;
* hammer, crowbar and probing devices;
* 10 mm drill bits and a cordless drill (drill bits will need to be of sufficient length in order to, if and where necessary, penetrate a decayed member from one side to the other);
* wood plugs (11 mm diameter) pre-soaked in hot creosote;
* small plastic sample bags ('zip-lok') to retain drill or core samples;
* a procedure for recording notes (surveyor's waterproof notebook, portable recording device, camera and flash etc.).

Damage Detection

There are four common methods of detecting damage:

1. visual examination
2. hammering ('sounding')
3. drilling
4. coring

The first two methods have the advantage of being fast and nondestructive. Drilling and/or coring is slower, but this method gives better information at a particular location. There is minor damage to the structure with drilling and/or coring. Refilling with preservative treated plugs should minimise any long term effects of this investigative method.

The first two methods are a minimum for an initial inspection. Methods 3 and/or 4 should be employed where there is sufficient suspicion of accelerated decay since the last inspection. All four methods are detailed below.

1. Visual Examination

This is the first method of decay detection. Fungal growth may be detected from coloured streaks on the wood surface, and actual mycelia will be well established below the surface. Bankia and marine borer can often be readily detected from the small holes in the surface of the wood.

2. Hammering

The second method of inspection is to use a hammer to inflict a series of heavy blows on the member to find areas that sound soft or hollow. This method is time efficient and obtains useful condition indicators, though it may not detect decay in all cases, and can indicate decay where none is present, or for instance where only superficial surface decay is present.

6-10 blows over the surface of the member, or aimed at suspected areas of decay, is generally sufficient.

3. Drilling

When there is any suspicion of severe decay, drilling at the most decay-prone points can confirm that the visual inspection and hammering have given an accurate indication of the condition of the member.

Random drilling is also carried out on pilings, corbels, and pilecaps for confirmation.

Drilling of the tension face of bending members is to be avoided.

To avoid or prevent spreading decay, the drill bit should be dipped in a solution of at least 70 percert rubbing alcohol between each use.

Drilling debris or shavings are collected from the drill bit for inspection and bagged for further analysis if required.

The hole is immediately treated with creosote and filled with a creosote-soaked dowel.

Excessive moisture can be immediately detected by the 'feel' of the drill and examination of the shavings. As necessary, shavings could be retained for further analysis in clean 'zip-lok' bags and clearly marked by the member number and the approximate position of the insertion.

4. Coring

Coring is very slow and time-consuming. This method can provide a sample for a laboratory analysis if that is seen to be necessary. For example, laboratory testing for identification of fungus, moisture content, and species of wood is relatively straight forward.

Cores are taken at the same points as the drilling and the same precautions apply.

2.4.3 *Assessing Borer Damage*

Methods of assessing for borer damage follow all aspects of 2.4.2 Assessing Decay (above)

Assessment of decay begins with a determination of the decay prevention steps that should have occurred at the original construction, (if any).

The creosote pressure-treated lumber used in the 1986 repairs will prevent decay for several decades. Wood treated over 40 years ago can be found in some of British Columbia's structures in a condition similar to the original. The treatment is most effective when not exposed to direct sunlight or to extreme drying and wetting cycles.

Linmoria infestation is visible as fine tunnels or striations in the wood or, if the infestation is high, the damage impact is heavy, as evidenced by the presence of an hourglass shape in the intertidal zone.

Bankia damage is only visible if the borers tunnel out to the surface or very close to it, or if mechanical damage reveals the tunnels.

While inspecting for borer damage, any notable construction errors that require correction or other inconsistencies should be recorded.

2.5 ***Remaining Useful Life***

The inspection report should note the estimated remaining useful life of the various components of the structure. A re-inspection timetable should also be established and followed. This is an essential part of the long-term planning process.

Where creosote-treated wood is examined for the presence of decay and found sound, an estimated life in excess of 8-10 years is appropriate. It is our recommendation, however, that all piles, regardless of condition, be inspected on a five-yearly cycle.

Where some evidence of decay is found, but limited in extent, the element is assumed to have a residual life in the order of 3-5 years on the southwest coast of Canada. (This is what we have termed a "low" level of decay on the inspection reports). Wood species is of course a critical factor in determining any time/decay assumptions.

Where an element has a weakened cross-section due to decay, based on visual observation or hammering and confirmed by drilling, the residual life is taken as negligible and the element is considered unreliable for structural loads. (This is what we have termed as either a "medium" level of decay or a "high" level of decay on the inspection reports).

Re-inspection and monitoring requirements should be established for each major class of element in the structural system based on current condition, vulnerability to damage and decay and other factors specific to the zone of the structure.

2.6 *Conclusions*

Monitoring is at the heart of the principles and practices of conservation of cultural property, and contributes positively to both decision-making (improving planning, periodic review, and enhancing implementation), and accountability (routine reporting and assessing impacts). Monitoring is one of the most valuable tools that help us, (i) plan for and guide change, and (ii) keep track of progress, results and impacts to improve future conservation works.

Taking care of, or maintaining cultural property requires a vast range of both methods and means, many of which are site-specific or culture-specific. There are however a number of principles of conservation practice that do cross cultural borders, and recognising the necessity and value of regular and systematic monitoring is one such principle.

While it is not a simple matter to generalise about the uses of monitoring for conservation, the link between the two main reasons above is clear: to assist with the improvement of both decision-making and accountability, to provide a means of control and measurement that are complementary. Monitoring in this instance (as described in this paper) is essentially an analytical management tool that results in a systematic method of documentation. It is the process of observing and gathering information on conservation activities, their context, results and impact. Its goals are:

(i) to ensure that inputs (time, energy, finances etc.), work schedules, and conservation works are proceeding according to plan, (that is, that implementation is on course), and

(ii) to provide a record of input or resource use, activities and results, and

(iii) to warn of deviations from initial objectives and their outcomes.

Conservation of historic buildings and sites could aptly be described as a process of continuous care for which various necessary monitoring activities provide the essence of continuity.

Small - Format, Aerial and Close - Range Recording of Archaeological and Historic Sites and Buildings

Francisco Ursúa Cocke

Abstract

Recent original research and applications are presented for archaelogical and historic sites and buildings. painting, stained-glass, sculpture and other cultural properties. Commentary is offered regarding accuracy, linearity and expression; and it is suggested that the operator in simplified photogrammetry, and educated viewers and users of line drawings will better appreciate, from the resulting drawings, the difficulties and merits of the work's execution, as well as its meaning. An original, PC-programmable procedure for three-dimensional plotting in the drafting room is based on the use of utility, light and micro-light fixed-wing aircraft, specially-prepared or commercial 35-mm color slides, amateur cameras and in-house rectification on simple proprietary equipment. The reader will be able to reproduce the general procedure after reading this article. The benefits are field-proven : 17,000 m2 (170,000 sq ft) of historic elevations were done recently in Quito, Ecuador in three months time with five local trainees to acceptable accuracy. Observations are made regarding corrections in the drafting room; and examples are given at the end of photographically-derived perspectives.

Introduction

We shall be dealing in this paper with traditional architectural surveys (elevations, details) and also with painting, stained glass, sculpture and other cultural properties. Artists have often (discreetly) used the *camera oscura* and photography, its legitimate heir, for support; Canaletto and Monet come to mind. The former used a tent-like contraption with a lens and mirror for his wonderful perspectives of the Canal Grande in Venice. The latter had a darkroom at Giverny; and the famous waterlilies, perspective appears to be photgraphically-derived from a telephoto exposure. Which is of course no reflection on their talent. We document here, from personal experience, the equivalent use of non-metric 35mm equipment and specially prepared or commercial color slides, aerial or terrestrial, to produce at short notice, at reasonable cost, good drawings to acceptable tolerances.

Theory

There remains the thorny question of accuracy; or, more to the point, of a reasonable relationship between price, time of execution, and accuracy. It seems to us, that the *a priori* demands of the scientific method, or the need at some point in time for precise reconstruction of works that might be lost, must be compared realistically to the benefits of a less cumbersome procedure and in actual practice a more useful one to conservators. Dare we present here for debate, from personal reflection, this related and irreverent question: how much of a concern is a controllable error, duly announced by the operator, if no one can see it? We are thinking in this connection of drawings prepared at one point in our office, with a deliberate distortion of plus or minus four per cent that specialist viewers were unable to distinguish from the original. We thus find it unnecessary to correct for systemic photographic distortion (less than 1 percent by our measurements); corrections for tilt are given below. How much time and money and effort is one willing or able to expend on a particular project in relation to small increases in accuracy? An analogy applies to stereometrics. In many situations, it is quite a bit easier in actual practice to walk up, or go up, and measure depth by hand. But for close-up work we took it upon ourselves to do it analytically. We therefore lay down before our readers

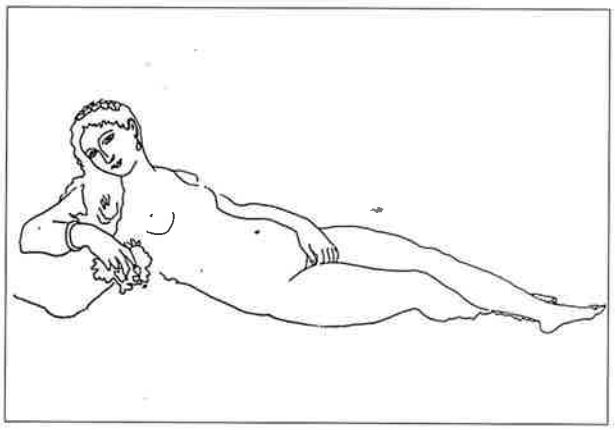


Fig. 1. Tiziano's Venere Giacente

the contention that in certain situations larger tolerances and more hand measurements should be allowed in the trade, with a view towards expediency.

Another question arises for painting and for stained-glass as an application: is it useful to render a non-linear work as a line drawing; and for sculpture, is it useful to render bodies, the folds of garments, and the expression in faces as line drawings? Regarding painting, we quickly resolved, in a difficult moment, an encouraging test-case from a commercial slide (Fig. 1). Villard's marvelous plates also offered encouragement for sculpture; herewith our testimonial (Fig 2). It appears at this point in our discussion that some combination of traditional free-hand drawing with modern methods, including photography and photogrammetry, can be recommended.

Applications

In presenting this combination of traditional and contemporary procedures, we write for ordinary talent in actual drafting-room practice, where rapid execution, firm outlines and good proportions are needed. We think also of the young, and of a healthy balance between craft and machine. In developing countries the young now refuse to develop their free-hand skills, hoping to purchase expensive hardware something which will never happen. They are idle, the equipment in established offices or agencies also is idle (but accruing capital costs), and the circle is never to be broken. And, when using stereoplotters, good expression in faces and bodies and the orders is hard to achieve: Corinthian capitals have been rendered occasionally in the form of artichokes, while the beauty of spiral fluting is lost in wiggles ! Adequate training in drawing by hand of historic buildings is the only way of preventing such unexpected results. This also applies to operators of stereoplotters, whose usefulness and astounding accuracy is not in question.

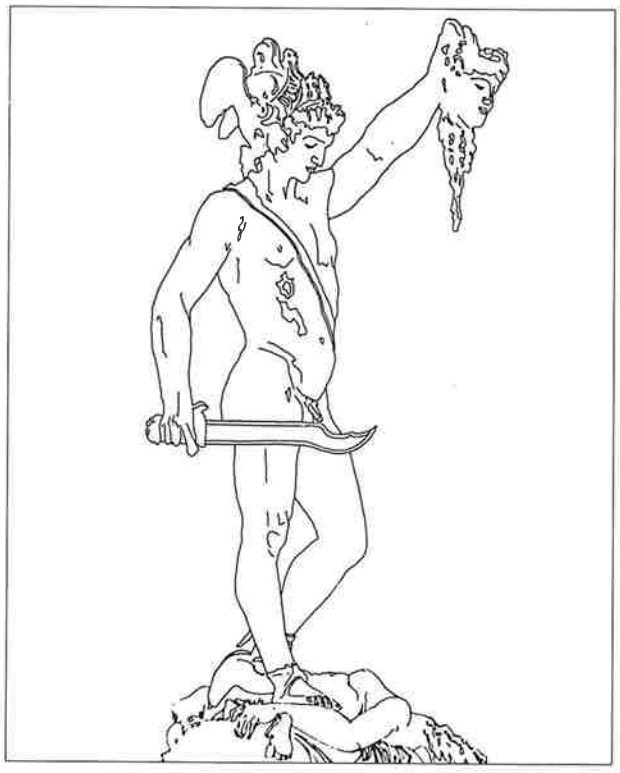
From photo-surveys drawn by hand, the draftsman, as well as the alert user, will obtain a more direct reading of the work owing to *the line's integrity* (Ingres) ; an appreciation of the difficulties involved in the execution of the original ; the perception of intimate reality, troubling at times and hidden ordinarily by the medium and by convention. Psychological connotations , less readable in the original owing to museum placement and lighting, become clear (Fig. 1). In summary, our feeling is that a photo shows all, while a line drawing shows more! Well yes, a line drawing is already an interpretation, thus showing *more* than the source photograph; and it is a teachable interpretation. Our method, to be sure, depends on a large pool of readily-available, semi-skilled draftsmen which is the, case in developing countries; but to judge from recent experiences in Mexico and Equador sufficient numbers of new applicants can master the few simple rules involved after one short training session (Figs, 8,9). We have seen only one really good European rendering: a Polish one of an altar-piece in Athens in 1991.

A few practical applications of this procedure are obvious: restoration and conservation projects, inventories, publication (line drawings are much easier to reproduce than values). Others must be explored in connection with conservation groups and the young.

Corrections

Fig. 3. contains observations which will serve to calculate percentage errors (d, Table I) with regard to 2R (diameter of an advancing object) for three different telephoto lenses:

Fig. 2. Cellinii Perseus



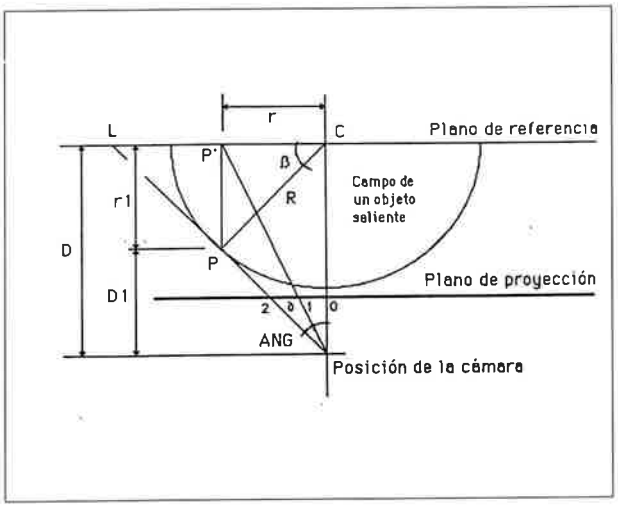
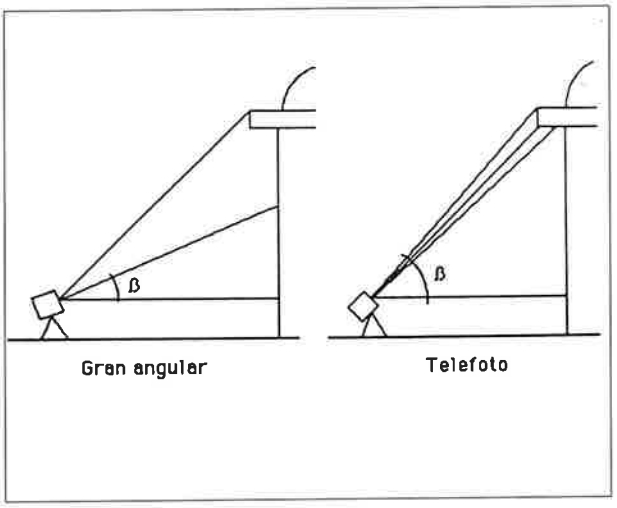


Fig. 3. Deformation in advancing objects, with the camera horizontal.



WIDE - ANGLE TELEPHOTO

Fig. 4 practical limits of camera inclination as a function of the angle of view.

Now, tabulating the above:
f= 200mm, ANG = 6 , D = 9.56R

B	d,%
0	0
15	1.34
30	2.39
45	2.82
60	2.49
75	1.45
90	0

f=400mm, ANG=3, D=19,1R f=800mm, ANG=1.5, D=38.46R

B	d,%	d, %
15	0.66	0.33
30	1.16	0.57
45	1.36	0.67
60	1.19	0.58
75	0.69	0.33

Table I : Percentage deformation in advancing objects

In practice, D is a multiplier for camera-to-object distance as a function of the object's diameter (actually the diameter of the circumscribing circle or sphere). Please note *small* percentage deformations with the *longer* telephoto lenses.

But the camera in the field must often be tilted: and we find practical limits to inclination as a function of the angle of view (Fig. 4)

B	f	B	B	f	B
10	24	0.87	15	24	0.82
	50	0.94		50	0.92
	135	0.99		135	0.99
	200	0.99		200	1.00
	400	1.01		400	1.02
	800	1.01		800	1.03
20	50	0.91	30	50	0.91
	135	1.00		135	1.05
	200	1.02		200	1.08
	400	1.04		400	1.12

Table II: Percentage deformation in plane objects with camera tilt and angle of view.

Further tabulation in the office, or field computation on a pocket programmable, will allow close-to-zero deformation with some certain combination of distance, angle of view, and lens; B, of course, is a percentage indicator of reduction or enlargement; for example, 0.88=88%, Empirically, we find the following configuration for a simple rectifier that corrects for an exposure with a 135mm telephoto lens and B=20 approximately (Fig.4). The inset shows a development now in progress based on an adjustable cylindrical mirror that will allow for in-between situations:

To plot larger deformations, we have written an original program in Basic, based on direct observation of parallax in our 35mm stereoscopic pairs. This original procedure we call *in-house stereometrics* (Fig. 6) :

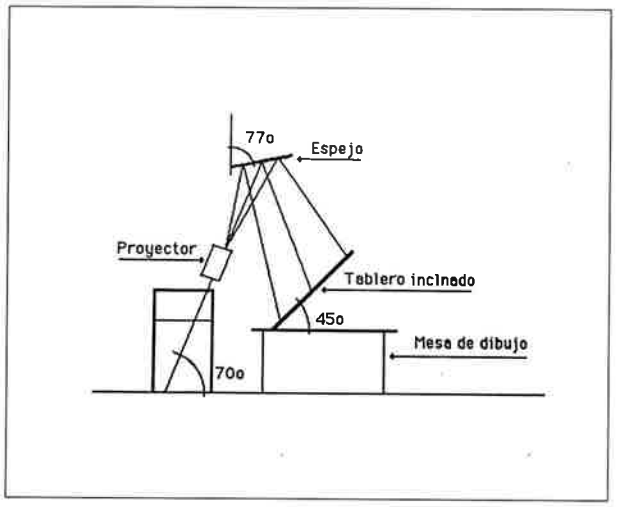


Fig. 5: A simple rectifier

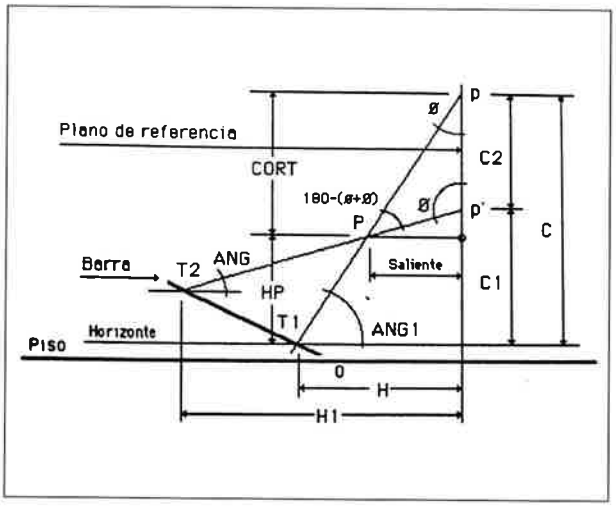


Fig. 6: Stereoscopic exposure with the camera tilted on one plane, perpendicular on the other.

T1, T2 are camera positions on a rod (two cameras are heplful). The necessary computations can be found in our original program in Basic (q.v.). What we get from this program is of course a side view (depth, elevation as in Basic (q.v.). What we get from this program is of course a side view (depth, elevation as in Fig. 7). The front view is easy to plot by combining this side view with the perspective projection on the first exposure. (Yes we are fully aware that Deleuze was doing it in the thirties; please re-read the Introduction).

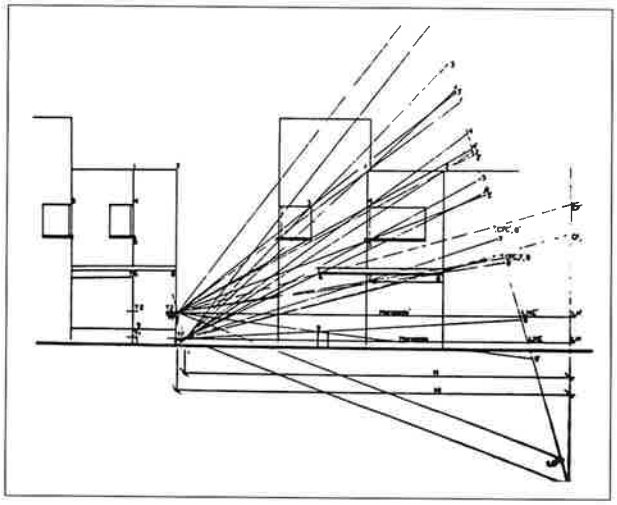


Fig. 7. Idealised side view.

Tabulation of Errors
Test Case Fig. 7

Point	Measured Height	Calculated Height	Absolute error	Measured depth	Calculated depth	Absolute error
1	7,33	7,40	0,07	8,51	8,28	0,23
2	7,33	7,35	0,02	5,37	5,13	0,24
3	5,78	5,68	0,10	10,86	10,81	0,05
4	5,78	5,82	0,04	8,51	8,39	0,12
5	4,34	4,30	0,04	8,51	8,69	0,18
6	2,93	2,82	0,11	10,52	10,52	0,07
7	2,59	2,49	0,10	8,52	8,73	0,21
8	2,95	2,82	0,13	5,68	5,77	0,09
9	0,40	0,39	0,01	10,55	10,56	0,01

Standard deviation, general	0,07
Standard deviation, height	0,04
Standard deviation, depth	0,08
Average error, general	0,10
Average error, height	0,07
Average error, depth	o,13
Percentange error, general	1,95
Percentage error, height	2.12
Percentage error, depth	1,77

Percentage error calculated by dividing absolute error into measured values.

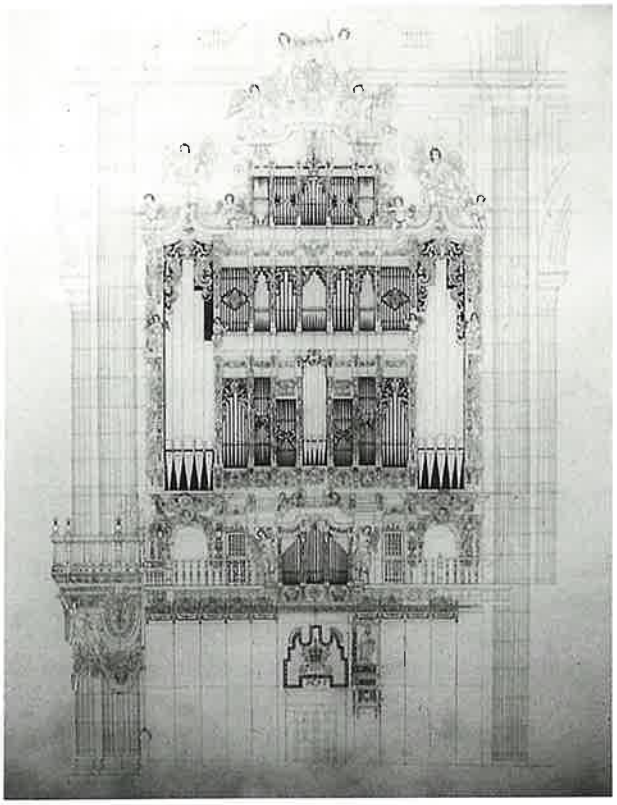


Fig. 8. West elevation, tracker-action organ

Aerial photogrammetry and photographically-derived perspectives (Figs. 10, 11, 12) are interesting applications. There is wide experience in small-format aerial photogrammetry in Europe from the past two decades ; less so in Latin America. What you do is basically, point the camera downwards, and use ingenuity for camera support (such as a simple aluminum frame sticking out from a door), firing at intervals (with a wrist chronometer or, more elegantly, an intervalometer), and navigation (using landmarks on small jobs, satellite navigators on large ones). Then you do a few oblique shots to complement the vertical ones (Fig. 10), Next, project the slides on your simple rectifier (Fig. 6) and pick out by hand what you want (Fig. 11). To do a perspective, you hang around the object until figures to your liking walk up (Figs. 12-15, taken from various neighborhoods and composed as needed).

Operation:

We usually do large drawings on bond paper, 90cm wide, freehand in ink, with an ordinary fountain pen or a fine-tip marker; or in pencil with a modified T-square or drafting machine, tracing directly from slides projected on to the drafting-table. Drawing size is more of a concern than scale.

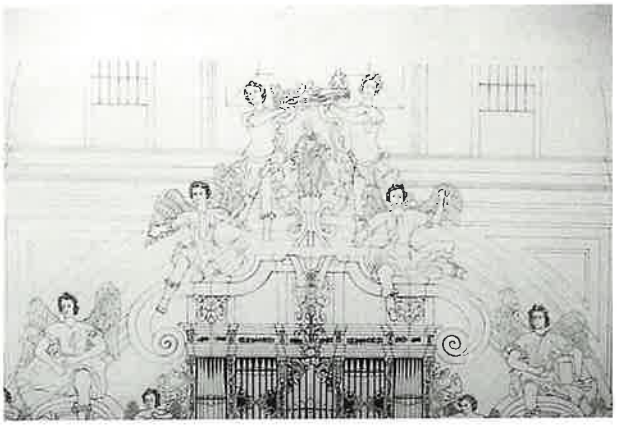


Fig. 9(1). Detail of Fig. 8

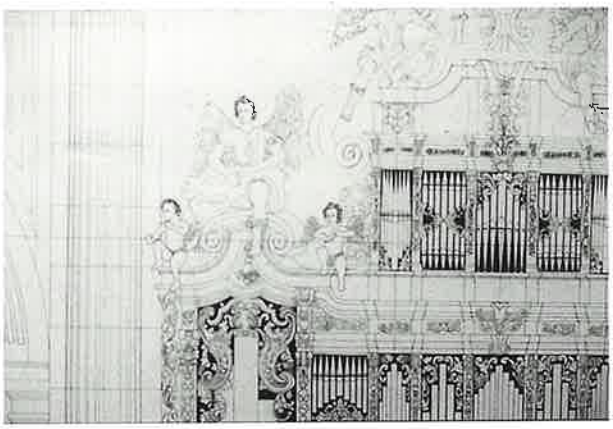


Fig. 9(2). Detail of Fig. 8

Fig. 10. Vertical and oblique aerial exposures (placement of)

Fig. 11. Selective rectification of Fig. 10

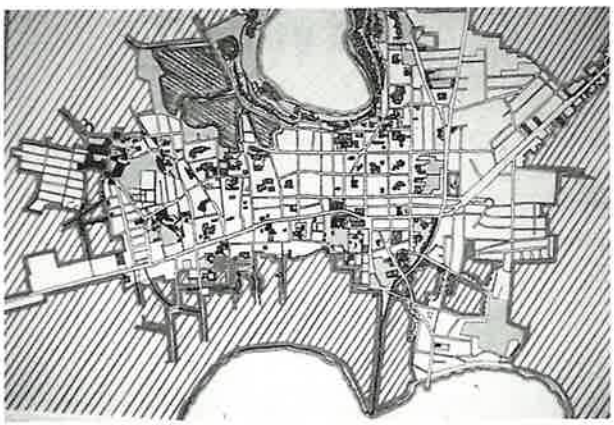


Fig. 12 - 16. Photographically derived perspectives for the historic centre in Quito.

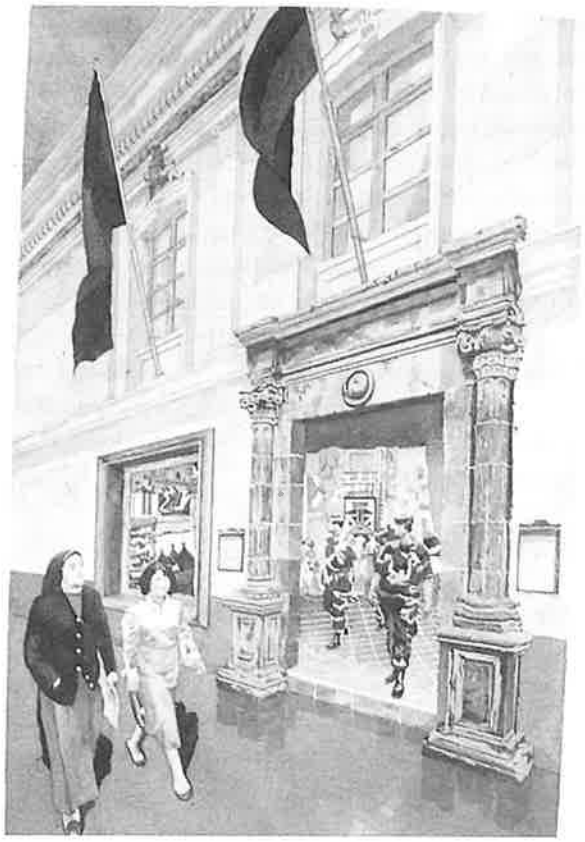


Fig. 12

Fig. 13

Fig. 14

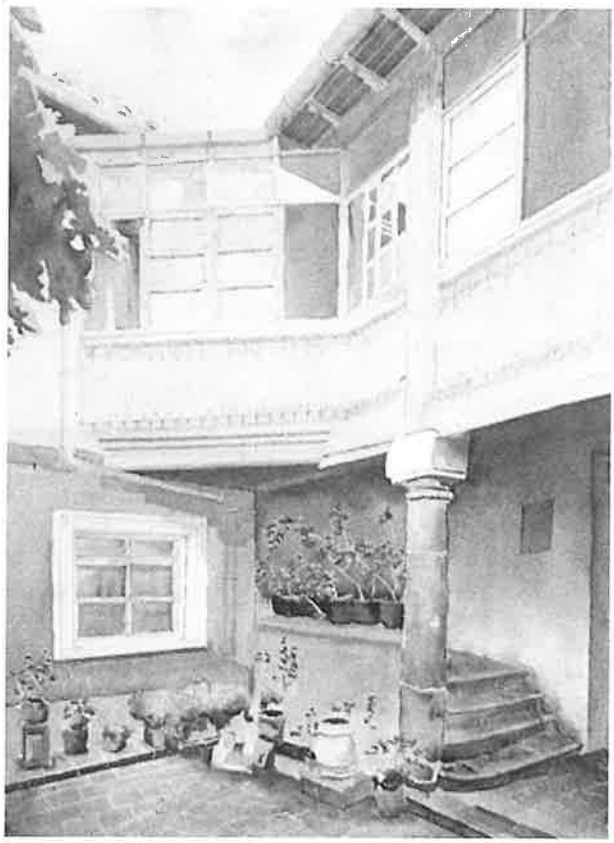


Fig. 15

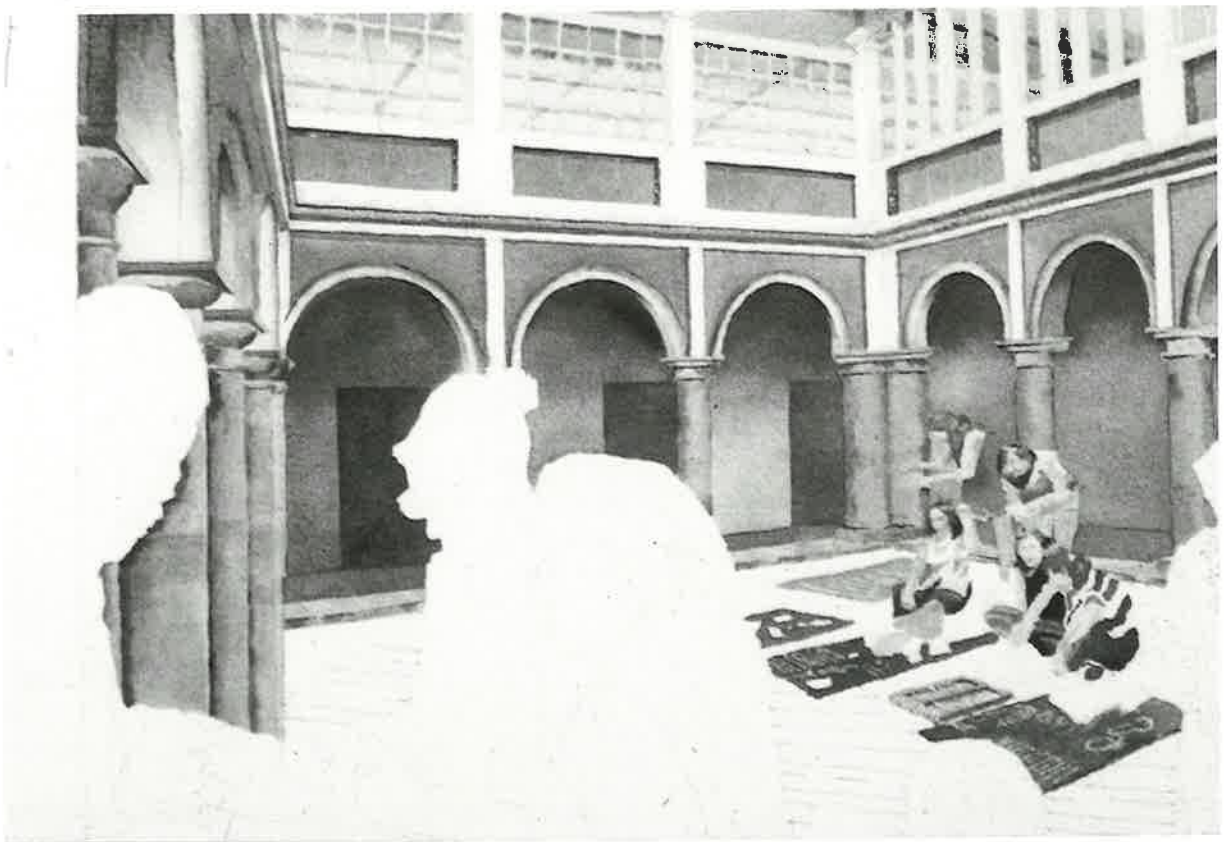


Fig. 16

A zoom projecting lens if available, or the projector's distance from the drafting surface, can be used to set the scale of the drawing; but the xerographic copier can also be used for that purpose. Corrections can easily be made with white correcting fluid; one can even do collages, especially for faces (which are difficult), prior to copying or reducing xerographicaly on a better-grade paper, such as Canson. Lines become finer on reduction, giving a pleasing effect. Currently we are doing large perspectives on 640-gram Arches paper, 76 x 105 cm, for the historic center in Quito (Figs. 12-15).

Conclusion

Architectural offices and agencies dealing with heritage conservation, as well as individual researchers and groups dedicated to its protection, will benefit from the use of commonly available or easily constructed equipment for the timely, practical and modestly priced execution of surverys with an accuracy acceptable for numerous applications: design, inventory, publication, research, update of existing surveys. For these applications, the price-time-accuracy relationship seems to favor simplified procedures.

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