

## Brasília, the New City

Mario Pedrosa

Brasília is the most finished product of an epoch, foreseen by the historian Henri Pirenne, as coming to complete the evolution of the historical entity which is the town or city, and dates back to the Greek polis and the mediaeval commune.

Although the first integral community known in the history of the West, the polis, was still a "natural phenomenon", it was already to a certain extent created: the first State, a pure institution, that is to say, the work of human will-power.

The other peak of urban development was the city of the Middle Ages, or, according to Pirenne, "a phenomenon determined as much by the physical environment as the course of the rivers is by the contours of the mountains and the layout of the towns". However, it has created "ex nihilo a more complete social legislation than any other period of history, including our own".

This first social regulation is the expression of a new institution: the commune. Under the shelter of a ring of fortifications, a unique administration of things (and not an administration over men) and an exclusivist collective jurisprudence, something quite new arose in the history of human culture: a privileged collective personality.

By successive stages, the Roman urbs, instrument of imperial centralizing and colonizing power, the Renaissance city, a high abstract thought that transfigured the concept of town, a human organization, into city, a hub of civilization, and the baroque town, which is already a princely town, decompose the more outstanding features of the Greek polis and the bourgeois commune, while remaining, however, subject to the natural determinants and social and technological conjunctures of each period.

Leafing through the pages of history, we come, at last, to the crest of the evolution announced by the historian, i.e. to that "more advanced epoch" in which "better methods ... may enable Man to dominate Nature and mark her with his presence, in spite of the disadvantage of climate and soil; it would then doubtlessly be possible to build cities anywhere that the spirit of enterprise and the search for gain may suggest".

Brasília stands out as the most finished expression of this "more advanced" epoch. The new departure, the development which is unique in history, what has gathered us together on these building sites, a thousand kilometres from the cosmopolitan centres along the seaboard of my country, is this decision of the spirit of enterprise Pirenne talks about, that has enabled us, starting from scratch, in a virgin countryside, unpeopled and wild, so far removed from the centres of civilization, to come and build an artificial, brand new town of 500 000 inhabitants to make it into the capital of Brazil. At our epoch, there is no human undertaking that is vaster, more complex and more hazardous. Where are the precedents?

By its artificiality and its finitude, this undertaking is a thing of art. The merit of art and its service to civilization, says the philosopher Whitehead, reside precisely in this artifice and this finitude. Brasília is, essentially, a work of art that is being constructed. For the work of art is nothing but "a fragment of nature that bears on itself the mark of a finite creative effort, so that it remains alone, an individual thing, detailed from the vague infinity of its background". An epoch that aspires to synthesis, our fin de siècle will show an increasing tendency to build towns and regions. Construct the new city—that is the greatest work of art that can be achieved in this century.

Brasília is not, however, a mere artifice extraneous to the history of the country. It is a decisive step therein. To begin with, it may be said that Brazil, like the whole American continent for that matter, came to civilization under the shield of an initial intervention on the part of a sovereign State, under the flag of a rising mercantilism. This *laissez-faire*

liberalism has never been an end in itself for this country (as it was for the United States). Arriving late on our shores, it appears nowadays and increasingly to be an exception, necessary perhaps but at any rate transitory. Our past is not fatal, for we remake it from day to day. It has but little mastery over our fate. By the very fatality of our development we are condemned to the modern. Our "modernity" is so radical that—rare as it is for a State—we have our certificate of baptism. We were born on a precise date: April 22nd, 1500. Before then, we simply did not exist.

Our first capital was built, like this one, on virgin soil, and farther away even than Brasília from the civilizing centres of those days. It was Salvador, Bahia. By royal decree of Dom John III, issued on December 17th, 1548, a trusted servant of the King of Portugal set sail for Brazil with express instructions to take over the land "on his account, in order to people it, as being the mid-point and heart of the whole coast, and thereon to raise a town whence aid and succour could be despatched to all the captaincies and peoples thereof, as to its own members". This decree contained an exhaustive plan for building up a country from the very start. A Brazilian historian of our days has felt justified in writing: "Few monarchs in the course of history have had the sense to take advantage so clear-sightedly of a rare opportunity of erecting, from the foundations up, the edifice of a State".

The King talks of "giving order and measure" to the people of the new lands by having "a fortress and a large strong town built on a suitable site". The new Governor-General, the first the country has ever had, after searching with his companions for the most convenient spot (to this end a Mass was celebrated), "sets to work, without delay" and does so with such good haste that by the last day of April "the Governor had landed on March 29th, 1549" "the wooden fortress was already completed ... and the town almost entirely surrounded by a stockade, provided with all the officials appointed to govern it and all the 'offices' necessary therefor". "Trees have been felled, ... on the site of the central square the ground has been levelled, streets and squares laid out, and the various mansions distributed", including the council palace, the governor's residence, the "House of Accounts", and the church. This was all on the top of a hill overlooking the sea, with four ramps leading down to the beach. As you see, the governor's square, his residence, the council chamber and the treasury, what are they but the "Plaza of the Three Powers" of Brasília? Only the church has been omitted this time, for in the meanwhile it has been disestablished. And who built the town? It was the Portuguese master of works, Luis Dias, who had arrived at the same time as the governor with nearly six hundred workmen, amongst them numerous masons, carpenters, joiners, blacksmiths, potters and other artisans. The governor himself did not hesitate to labour with his own hands at the common task, and could be seen every day carrying heavy beams on his shoulders.

Portuguese women were scarce, so the colonists soon acquired the habit of marrying the Indian girls, ending up with 2, 3 or even 4 or 5 wives apiece. The birth rate was amazing. In order to come to the help of the first owners of sugar-mills, brought from Cape Verde across the Atlantic Ocean, a royal authorization dated March 29th, 1549, entitled each colonist who was *senhor de engenho* "lord of a sugar mill" to receive from the islands of São Thomé, off the coast of Africa, as many as 120 Negro slaves from the Congo. In 1551, the first Negroes arrived in Bahia: and now the ingredients were present on the virgin soil for the mixing of blood and the racial alchemy which has produced this Brazilian people who receives you today in this, the third capital that has been built under conditions that, after all, are not so unlike those which attended the building of the first and the second.

The boundaries of all the newest and most active part of this country are not yet fixed, for they change constantly in accordance with what geographers call "the pioneer fringe". Pierre Monbeig, in *Pionniers et Planteurs de São Paulo* ("Pioneers and Planters of São Paulo"), tells us that these people were im-

bued with "the taste and the quest for what is new, the will not to stand on the heritage of the past. The manifestation of a powerful vitality" drives them on. But Brasília has no share in this pioneer fringe, either by its geographical position, far to the north of the São Paulo fringe, or by its function. It should be considered rather as a central kernel of civilization cast in the heart of the country, to germinate and spread out on the flank of the fringe of pioneers and planters, advancing over westward. It would seem as though it were placed there to outflank them, and in doing so, it is liable to create new stresses on the edges of the inland frontiers.

The whole activity of the country "is affected by the continuous shift of an important mass of the population, the instability of which remains, four centuries after the landing of the first Portuguese, one of the basic features. ... Everywhere", observes the eminent geographer, "as much in town as in the country, the traveller feels that nothing is stable, nothing is definite, and that the economy and the peopling are bound to the pioneer advance which is forging ahead inexorably toward the west, hundreds of kilometres farther on". At this distance, the settlement fringe begins. The "past has not had time to age. Thus Ribeirão Preto, which has not yet seen three quarters of a century, is dubbed an "old town". "The European", stresses Monbeig, "finds it rather difficult to understand that 'in the past' refers to 1910 or even, if he is talking to a young man, 1920. Everything takes place as though this country had gone through, in three-quarters of a century or a century at the most, what it has required thousands of years to achieve in Europe ... And that is just it: birth and development of the rural landscape, foundation and growth of the towns, construction of a communications network, intermingling of races, elaboration of a regional mentality, this is the immense travail that is still going on under our very eyes".

As a result of our insuperable newness, we undoubtedly lack stabilization of the rural landscape (above all in the new regions of the southwest and northwest: São Paulo, Paraná, Mato Grosso and Goiás). The elaboration of a "regional mentality" is still a long way ahead. The region, in the geographical and aesthetic sense of the word, has no place in this indefinite countryside, uniform in its basic instability, due to the frantic "march to the west". But in its onward march, the pioneer farming movement from São Paulo tends to come up against a kind of contrary demographic movement in central Brazil, which is the work of the old pioneers originating from these very parts of the country, Minas Gerais and, farther north, Bahia. This means that central Brazil is still, as it was in the days of the Portuguese colony, "the meeting-point of Paulista and Bahian streams of influence". The spirit of capitalist speculation is the driving force behind this Paulista movement, ever seeking new land, with maximum yield, for planting coffee and other export crops. On the contrary, the other movement, following the ancient trails trodden by stray cattle—which have been cutting tracks over the semi-arid wastes of the central uplands since the colonial period—is not especially attracted by world markets. The Paulista fringe also has an urban function, and sets up towns at top speed. In a recently opened clearing, the enterprising estate agent makes haste to lay out a few streets and haul to one side the tree-trunks still lying where they fell when the land was cut over, and starts selling lots on the spot. The first houses are run up using roughly squared planks and indicate the site of the future "main street", when they do not parade as Main Street itself. Nothing can be better fitted to the marketing of goods along the highway. In these rough-and-ready stabs at town-planning, the lead that used to be privilege of the church square now falls to the main road.

The pioneers are indifferent to local colour, for they never halt in their unending odyssey. A true regional mentality cannot be expected to flourish in such an environment. It is therefore impossible, at this stage of colonization, to pursue any research in depth into fixation of the rural landscape. The pioneer does not even suspect that there are any truly autochthonal, regional, social and physical structures, or, to adopt Mumford's magni-

ficient formula, any complex vernacular forms. Having raised the question, scientific geographers reply: "Up to the present, the feeling of belonging to a region, the desire of settling down there, the emulation that might promote a regional outlook, are no more than confused notions". Regional sentiment is confined therein to "the expression of a community of class". "The Sifante" (or homesteader), "who only settles down temporarily and whose interests, and debts, are short-lived, has nothing to encourage regional solidarity."

Brasília is, so to speak, the very opposite of this pattern. First of all its creation arises, not out of "the tenacious desire of gain", but from a deep-seated political aspiration, persisting from generation to generation. Here, as in the Middle Ages, political needs and aspirations have preceded economic necessities. The spirit that animates Brasília might be the old mercantilist spirit of the colonizing king, but, in its profound reality, though it may not yet be quite explicit, the driving force is the spirit of Eutopia, the spirit of planning, the spirit in fact of our times. It is also the gesture, as yet somewhat vague perhaps, of an elemental national vantage: that of protecting the land from a terrible continuous process of destruction. "The destructive action of the pioneer is considerable: destruction of the forest and, with it, destruction of the land... The economy of the pioneer set-up has imposed a wasteful system of farming on these too hasty men. It has stifled the respect for the land which is the leading of the peasant" (in Brazil, the peasant appeared upon the scenes long after the townsman). "To keep up the yield of their crops and continue to sell all over the world, the pioneers are obliged to keep continually on the move. And where the planters have passed, even grass does not grow well".

Under the national, centralizing authority of the State, with its gray juridical uniformity, true regions will never emerge. But what is disconcerting is that the zones the pioneer fringe has left behind it seem to be incapable as yet of growing crops to take the place of coffee. Even more serious is the fact that the economic burden of the pioneer fringe weighs heavily on the national economy as a whole. For instance, 40% of the coffee-trees in the state of São Paulo are to be found growing on the estates and small plantations that have been cleared no more than fifteen years ago. Together with the north of Paraná, the new zones supply the bulk of the coffee output which is the main source of the wealth of the nation. It is true that the intensive industrialization which is at work at the present time tends to create new resources, unrelated to this itinerant production headed for foreign markets. But it is too early for the effects to make themselves felt. Brasília, however, may hasten the moment of liberation from a subservience to the market of international prices that is far too direct. Alone Brasília can force the pioneer fringe to come to a standstill or, by a flanking movement, drive it to slant northwards towards the new capital.

The rate of expansion of the home market will only be accelerated by the creation of new, true regions in the centre of the country, around the new capital. It would not, indeed, be possible to redevelop or to develop these areas in the absence of this land reform which is being discussed more and more seriously in Brazil. In short, Brasília presupposes a geographical, social and cultural readjustment of the whole country. Monbeig hopes that the "economic renaissance" will come when "the advance of the pioneer fringe has reached its limits". The dawn of the economic renaissance will break with the inception of the plan. The plan will mean the turn of the tide of pioneer speculation.

Around the new capital, there will be none of the monotony of great spreading plantations, continuing to pour out their products to foreign markets. The economy of the pioneer set-up will no longer be able to force its destructive land policy on the country at large; around Brasília, what is needed is a farm economy based on skillful practices of soil recovery. This implies scientific regional planning, non-empirical and—literally—down to earth. The task of the coming generations of Brazilians is, then, set for them: to build the capital from nothing, in accordance with the finest and most daring of pilot plans, and simultaneously, but no less artificially, develop

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the region with its rough, poor soil; the object of the plan is to define the complex vernacular form of the region. It must, therefore, be conceived on a high scientific and aesthetic level, driven by the same urge that has inspired the collective work of art embodied in the urbanistic and architectural ensemble of Brasília.

The work is now well in hand. The new City is a composite whole like a huge building, from top to bottom, a finished product of the conscious will of man. It is a work of art on a par with the great industrial projects undertaken by civil engineering within the scope of our civilization. Herein lies the major problem set before our Congress. It is the first time that this problem is posed concretely, covering so wide a range. The enterprise in itself comprises a social, cultural and artistic whole.

By its very nature, it exerts an invincible appeal over all the elements that combine to form the highest and most comprehensive aspiration of our times—a synthesis of the arts, from the most noble down to the humblest and most strictly utilitarian. The hypothesis of Brasília embraces them in one sole complex, in one sole community.

In this aspiration to synthesis, there is a high ethical value: the man of today, distracted and nerve-wracked, aspires to the union of opposites, to the spiritual communion he has lost. So-called modern art reached the end of its creative-destructive stage, by no means devoid of the illuminations of genius, by the close—say—of the first half of this century. But now the need for a return to synthesis is self-evident, and coincides with the necessity of reconstructing the world that is urged upon us from all sides. We ourselves are beginning here with an attempt at regional reconstruction. This aspiration to synthesis or integration—in what does it consist? In once again assigning to the arts a social-cultural role of the first order in this task of regional and international reconstruction which the world is shouldering—eventually will shoulder—unless it is destroyed in an exchange of guided missiles.

Synthesis of the arts is the only possible corrective applicable to the destructive pessimism of the individualistic art of our days, to the expressionistic, romantic and temperamental urges in vogue. The only way to restore to the artist an awareness of the dignity of his social mission and to lead him back to a certain sense of objectivity is to offer him, today, now—and not in the guise of vague political promises or Messianic expectations of a different world that is inexistant or inconceivable—every opportunity for him to take part, freely, spontaneously, with no restriction of his creative freedom, in a collective work like that of Brasília. The point is that such an undertaking, to be successfully carried out, must be imbued with a super-personal ethical ideal as an integral part of its creative process, a social ideal even, capable of rallying about it all the driving forces of the city.

Town-building is again, as in the Middle Ages, in the forefront of human activities. But already Mumford is pointing out that “the great task of the younger generation will be the reconstruction of regions considered as collective works of art”. If this be admitted, Brasília stands before you not merely as the landmark of a stage in the development of Brazil, but as a capital problem of our whole civilization, which is becoming increasingly world-wide in scope. It has, therefore, implications that are not only national but certainly international. It is up to you to elucidate them, for you are invited here, not to eulogize, but to criticize and collaborate.

### Architectural and Urban Elements in the town plan of Brasília

Sir William Holford

1. There are two methods of reopening up a region; one is by ribbon development on a network of roads, by which is achieved the reticulation of the “linear city”. The other is by creating a new centre and enabling it to grow by continuous spread or by satellite

development until its influence is regional or even national.

Brasília, as a federal capital, has followed the latter of these methods; and although of the same genus as Chandigarh, it is unique in the world as regards its size, completeness and consistency.

2. A main feature of Lucio Costa's initial plan is that it is extrovert, in the manner of an Italian hill-town, and not inward-looking, as in the case of Palma Nova in Venetia. The form and nature of the town is fully exposed at first sight; the major open spaces are around the city and not enclosed by it; there is domestic privacy in the residential superblocks, but the public buildings are proudly displayed. A planned unity has been achieved in great park and building compositions such as Versailles, in monumental axes, from Thebes to Washington, and in smaller towns; but has not been attempted until now for a city of half-a-million people.

3. A simple aggregation of units could achieve metropolitan size, but not metropolitan unity and character. Brasília's plan is a complex structure, like that of the larger vertebrate animals. The cells are built up into differentiated organs and circulations; more complicated than the extensible grid-irons of most American cities, the functional machinery of a Magnitogorsk, or the neighbourhood grouping of the British New Towns of the last decade.

4. This complexity is also highly vulnerable. The artistic unity of the design will have to be supported by unity of control and by comprehensive and long-term capital investment, if it is to be preserved at all. The financing of the communications system, for example, cannot expect the immediate returns normal to estate development on a smaller scale.

5. The residential “squares” walled by trees, as the ancient town of Lucca is walled by ramparts (on which the citizens can walk of an evening), form a very original extension of the “superblock” idea with its internal pedestrian movement. Even more original is the idea of framing them over the whole extent of the completed town plan before all the detailed pictures are painted within the frames.

6. As the plan of the town is finite, residential growth over the planned figure of half-a-million will presumably go to satellite towns outside the central city; some of the national features of the capital will be more or less permanent; and most of the commercial and civic areas will be redeveloped—perhaps more intensively—after a period of years. Brasília is a supreme example of the fact that one cannot plan for a city of indeterminate size and unlimited growth.

### The Placing of Public Monuments and the Distribution of Spaces

Alberto Sartoris

Nowadays, the laws and rights of town-planning, architecture, aesthetics and the arts do not necessarily correspond to the rules and operations of finance. In the new city, however, it is indispensable for these various imperative and differentiated factors—which together form the basis for successful achievement of the undertaking—to find common ground on which to meet and come to an understanding.

However little one may be affected by the lamentable spectacle met with in most of the large urban centres, one should not stand in the way of their reform and their development on the fallacious pretext of tradition and respect for local colour. There's many a pick and shovel that has gone astray! Town-planning being as closely linked to the arts and architecture as it is to technique, economics and sociology, it must be undertaken on all these planes if they are to have a normal co-existence. Thus town-planners who are not architects and architects who are not town-planners should be viewed with suspicion.

It is no longer possible to set out the problems of town-planning rationally, without first envisaging those of organizing the whole territory. Hence the necessity of rapidly establishing the fundamental bases and the principal elements of a regulatory plan that is territorial, national, regional and communal in scope and favours the creation, distribution and exploitation of spaces.

As the writer already pointed out in 1935, to promote the development and extension of functional town-planning, it is necessary above all to combat the inconsequence of outside built-up areas and the proliferation of haphazard tentacular towns by putting up new cities in which town-planning and architecture personify the integration and the synthesis of the arts.

The civic centre is the emblem and the vital hub of the new city. The real and effective application of this system entails and furthers research into the placing of monuments and public buildings in the distribution of spaces, so as to determine the true theory.

In the new city, monuments and public buildings are not erected for decorative purposes. They are born of definite needs, originate in the optics of construction, represent ideas, signify the features of an environment. Determination of their sites should depend on the physical and geographical structure of the town, its urban anatomy, its spatial, organic and social sense.

In a town developing around communal centres (small, medium or large autonomous pivots on which a convergent organization is centred), the distribution of interior and exterior spaces, collective areas or yards (patios), squares, open spaces and green zones regulate the choice of sites for public buildings in modular fashion and according to a natural rhythm.

In a town where the regional lay-out of the land has been taken into account, where the traffic has been channelled into pre-established itineraries, classified by order of priority, where the ways of communication have been plotted to correspond to the commercial axes and the varying requirements of the circulation, and to serve neighbouring units laid out in accordance with the connections between the city and the neighbouring spaces, the logical siting of monuments and public buildings derived from such a plan expresses the plastic vista of an ideally harmonious town in every quarter and in every perspective space.

Having acquired the indispensable dynamic drive and technical groundwork, the arts must adopt a status that enables them to fit neatly into architecture and be wholly adopted into town-planning.

In the world of today, there is often a conflict between the beauty of a line of reasoning and beauty of itself, beauty that should be a state of grace. There are thus grounds for admitting the principle which asserts that beauty should be mathematical and functional, but that it is more difficult to perceive what is beautiful, since ugliness is more striking.

### Integration of the Arts Synthesis and Plastic Unity

André Bloc

The promoters of Modern Architecture have all preconised stripping it as bare as possible in order to avoid any compromise with a debased form of decoration. In his writing, illustrated with numerous caricatural examples, Le Corbusier was one of the most vehement detractors of l'Art Décoratif and the International Exhibition of 1925, which was devoted to the so-called decorative arts. True proportions, balanced volumes, accurately interrelated dimensions and proper use of techniques—it is maintained—are at the basis of all architecture, without any need to fall on the other arts. However, the use of colour and the presence of sculpture elements may in some cases bring satisfactions that it would be a mistake to neglect.

The Dutch group of the “Stijl” and then Le Corbusier were in favour of the use of colour, but the guiding notions were very different. The very strict methods of the “Stijl”, known by the name of “Neoplasticism”, have a permanent value, and

even today a certain number of artists believe that they should bind themselves by the same disciplines as the painters Mondrian and Van Doesburg and the architects Rietveld, Oud and Van Esteren.

We may recall the highly successful experiment that Delaunay made in 1937 with the Pavilion of Aeronautics for the Paris International Exhibition.

Under the title of “Synthesis of the Arts”, Le Corbusier also comes out in favour of architectural polychromy, certain mural compositions and even the use of relief in reinforced concrete. Esteeming that he is better qualified than any other artist to achieve plastic unity in his architectural work by the integration of his own works, he never called in painters or sculptors. His intentions are excellent, but ill-defined. His architectural polychromy is highly vivid but rather turbulent, e.g. Housing units at Marseille or Nantes, Chandigarh High Court of Justice, Ronchamp Chapel. It is subject to no discipline.

The first experiments of the “Stijl” and Le Corbusier were followed, notably, by the ventures of the Paris Group: Espace. Based on abstract art, some effects have been tried out in the Paris region: polychromy in factory and apartment building design, mural compositions, abstract sculptures in gardens, etc.

Converted to the ideas of the Espace Group, the architect Villanueva leant heavily on abstract artists like Fernand Léger and Henri Laurens for assistance with the Caracas University City. The result is quite pleasing, though certain reserves may be made with regard to the excess of mural works that are mutually detrimental.

A contrary example dating from the same period may be seen in the Mexico University City with its immense surface composed without any conception of discipline or artistic organization.

The experimental designs made by Walter Gropius for Harvard University are worth calling to mind for their interesting development of “Bauhaus” principles.

One of the most beautiful contemporary attempts was made by architect Saarinen when he successfully designed a polychrome composition for General Motors Detroit laboratory and set up there a magnificent sculpture by Pevsner.

Several others deserve mentioning: thus the Swiss architect Tschumi included mural compositions and sculptures in his plans for a Lausanne office building; we have architect Ginsberg's work in the Paris region and the Unesco projects in Paris, which have been heatedly discussed; then there is architect Marcel Breuer who has incorporated a giant abstract sculpture by Gabo in a design at Rotterdam.

In landscape gardening, a distinctive personality has emerged in the Brazilian Roberto Burle Marx, very often working in close collaboration with architects Oscar Niemeyer and Alfonso Eduardo Reidy. He has developed a contemporary expression of the garden that is in admirable agreement with the architecture.

The Japanese American sculptor Noguchi has also suggested a solution for the problem of the modern garden, derived from the traditional art of Japanese gardening, but it would seem that he has advanced but little beyond the boundaries of a great tradition. In the field of architectural polychromy, we have been treated in the last few years to a considerable number of bold departures which are often disconcerting. With regard to colour, who does not believe himself qualified to make suggestions? It is seldom that a good colour specialist is not thwarted by all kinds of amateurs. Nothing, however, is more difficult than to achieve a good polychrome composition, whether interior or exterior. Despite his experience and his sound common sense, Fernand Léger thought up a design for the Hospital of Saint-Lô which is decidedly questionable.

At a moment when modern constructions are highly industrialized and demand the use of colour and an accurate adjustment of plastic detail, it is urgent for artists to set up the bases of collaboration with architects. Team work and sound training can alone enable the desired end to be reached.

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Both artists and architects should be willing to give up some of their freedom of action in an attempt to achieve that integration of the arts in architecture which will be so profitable to all concerned.

### Is Architecture the Major Art of the City?

Raymond Lopez

Which are the arts that contribute, in a semi-permanent way, to make the City what it ought to be? viz.:

The place where a micro-Society can flourish—in accordance with:

Its real function—to shelter human activities; Its unreal function—to stimulate the imagination and make men dream.

Town-planning, Architecture, Sculpture, Painting and Music, with more or less power and permanence, are of this nature.

**TOWN-PLANNING**—Science determining the value of spaces owned.

Art of defending spaces loved from the attack of adverse forces.

Art of creating joyful spaces.

But Town-planning is not "Architecture".

**ARCHITECTURE**—Art of arranging space. The city, which is a particular arrangement of space, is all "Architecture", viz.:

**Architecture of movement:**

Crowds on the move towards the place of work, residence or culture.

Crowds at a standstill in stadiums in public squares, in open-air theatres, on beaches or before churches.

Vehicles in motion or parked, streams or masses of many colours, and illumination by night.

**Architecture of construction:**

Buildings, monuments, works of art and engineering, such as bridges, viaducts and foot-bridges.

**Architecture of gardening:**

Parks, avenues and grassy lanes.

All the above are comprised in the architecture of occupied space, but there is also:

**Architecture of empty (or open) spaces:**

Squares, esplanades, boulevards, intersections, avenues, streets, rivers, streams, canals and play-grounds.

**SCULPTURE**

In monuments essentially symbolical in function:

the sign of a generous, uncalculating gesture.

As an ornament, integrated in Architecture: sculpture under the skin.

For enhancing the beauty of planted places, parks and gardens:

small sculpture; immobile and mobile sculpture (from the "mobile" to the "spatio-dynamic" work).

**PAINTING**

In the polychromy of buildings.

As an ornament integrated in Architecture. In publicity, luminous or not.

In the colouring of vehicles.

In the spectacle of sounds and lights or the changing animation of architectural volumes composed to this end.

**MUSIC**

In the noises of the City.

In publicity music or the sonorous background of public buildings.

In association with spatio-dynamics.

In all of this "Architecture" is singularly dominant:

City, mould, shell of a gathering of human beings:

Architecture.

City, complex composition in which things must be positioned in a subtle and formal hierarchy:

Architecture.

City, composition balanced between outer spaces, which enable man to thrill to the

relativity of grandeur, and inner spaces, that give him the joy of an environment fashioned to a human yardstick:

Architecture.

City, skillful weighting of forces in the subtle, unbalanced interplay of exteriority and intimacy:

Architecture.

City, outer spaces, inner spaces, forms from within, forms from without, correctives for what is too open or closed too tight:

Architecture.

City, Time's hour-glass, mirror and measure that allows a man to know himself through the fixation or rather the series of fixations of his ego in these spaces, loved or hated, hostile or friendly:

Architecture.

City, walled for defence; city, thrown open by the spread of culture; city, linear or punctual, according to the flow of industry, trade and exchange; Square city of Antiquity; round city of the Middle Ages; shapeless, straggling city of Our Times; biological city of Tomorrow:

Architecture.

Architecture, major Art of the City.

... but these are the ideas of an architect ... and open is the discussion.

### Tradition and Materials of the Past in Architecture

Julio Carlo Argan

It is a grave error to suppose that modern art, and therefore modern architecture also, demands the restatement of all problems, in matters either of form or technique. Modern art is no more than a phase—a present or contemporary phase—of the phenomenal series of artistic facts, or occurrences, from the most remote prehistory down to our days. If we are going to admit that contemporary facts interrupt that series, then we must admit that modern art is not art at all. As, strictly, modern art does not exist, nor then does any traditional art or art of the past exist that is entirely different from contemporary phenomena; on the contrary, experience shows that the work of an artist (one need only think of Picasso), the more extensive his treatment, in space and time, the more its old broadens, and the more it shows itself as just one more link in the chain of the phenomenal series of past art. It must be added, however obvious this may be, that the work of art only exists, that is to say, fits into the historical series of artistic phenomena, when it is distinguishable by something new, by an "invention": the development of the series is ensured by the very fact that each unit implies an innovation an invention, and each repetition interrupts it.

The character of an invention has been clearly defined by Bergson, Le Roy and Merleau-Ponty: the invention is nothing but a sort of excitement so long as it is on the threshold of the present, where everything awaits decision, where there is an orientation or a direction to be chosen in order to give significance and value to past experience (which is then the content of consciousness or consciousness itself), that is, the time "lived". Thus do we proceed to overcome the past, which becomes present. Invention, then, is nothing else than the interpretation or reinterpretation of experience, or of the past; nor can it be considered otherwise than as a critique of the past. Modern art is recognizable as such by the interpretation it gives of the past.

One may say of it what Paul Valéry has said of modern philosophy (*Variété I*): it is not recognizable by its object, but by its apparatus. What interests us is not the new form categories that it may conceivably introduce, but the method of operation whereby it proceeds.

Restricting our observations to architecture and design, we find that in this field the distance in relation to the past is considerably greater than in painting and sculpture: greater, precisely, as regards the apparatus. This is due, obviously, to the fact that the

mode of production, in the sphere of architecture and design, is largely adapted to the organizing and technical processes of industry. By means of these processes, modern architecture arrives at its most significant achievements so successfully that it is absurd to entertain the idea of a revival of handicraft processes and the aesthetic processes related thereto, as sponsored in the last century by Ruskin and Morris. If we analyse the development of architecture and design in the first decades of this century, we readily perceive that the most original artists and the most vital movements built up their propositions of form by way of a critique of the past. Wright always made use of materials and technical processes, the historical background of which is readily discernible; the Dutch, from Dudock on, sought scrupulously to combine their architecture with an environment that was very clearly outlined historically; in the Bauhaus, the critical study of handicraft processes always kept pace with that of design. The novelty of that architecture and that design can therefore be evaluated from the critical attitude that the artists assumed with regard to the technical processes, typology and forms of the past. It may be added that if this architecture and this design have not crystallized into the set formulas of a rationalistic programme and have achieved form values that can be judged by the same criteria as we judge buildings and objects of any period in the past, this must be attributed to that vivid and interested consideration of the past. The problem seems to be more complex when we come to the processes of our days. The methodology of designing has evolved to a point where it assumes a character of strictly scientific accuracy; the organization of the project, the widespread use of prefabricated elements, in short, the reduction of nearly all of the building process to a process of assembly, seems to exclude from the modern constructive output any possibility of falling back, even critically, on the materials or techniques of the past. An even more serious point is that it does not seem possible to oppose the aesthetic values of the past with another, different, series that is equally significant. But in making this statement, it is not my intention to echo the old prejudice that modern materials and techniques are incapable of producing aesthetic values. Rather would I affirm that, in the work schedule of a modern building project, technical problems are resolved on the drawing-board and thus are included in the methodology of design; the execution, however complex, is in reality nothing more than a question of assembly. Naturally, if the interest of modern builders is essentially methodological, it is understandable that they will consider particularly, in the art of the past, the methodological aspect. Clear evidence of this tendency is to be found in the volume of research pursued, from Le Corbusier to Wachsmann, on the "modulus" and modular composition, understood, however, phenomenologically, that is, as a real object, as a given element, as a quality value on which it is possible to develop, not—as before—a quantitative repetition (as proposed by rationalism), but a succession at the same time quantitative and qualitative.

It is not up to critics to point out their way to artists, unless it be to the extent that it is already possible to discern such a way, in the maze of inevitable interference and contradiction of indications in the present. I believe, however, that the way in which modern art can be made into a true phase in continual historical development will not be paved with technical and, even worse, stylistic revivals but rather involve a profound critical study of the old techniques, considered as so many other "methodologies of the invention of forms".

### The Industrial Arts in the New City

Gillo Dorfles

The domain of industrial aesthetics is extending further and further afield, ranging from the sectors of former handicrafts to those of household gadgets, and even huge manu-

factured structures including prefabricated architectural elements (curtain-walls, etc.) and, in the near future perhaps, the houses themselves. A large part of what constitutes the New City now belongs, therefore, to the field of industrial output. But how much of this "output" must be considered also as "art"? That is the crucial point: What artistic quotient should be assigned to the multiple objects, the multiple structures produced industrially? It is my opinion—and I have often affirmed it—that a leading role must be conceded today to industrial aesthetics in the development of taste in a people. But this is not all; it must be realized that industrially manufactured articles are almost the only ones that are within the reach of wide strata of the population. It is for this reason that such articles, rather than pictures and statues, are influential in moulding the taste of the general public and introducing a new "style". And this is also why, in these days, the mass-produced work of art compels recognition alongside of the "unique" work of art. It may even be deduced therefrom that if a new "visual civilization" is on the way, it will come in function of the graphic and plastic elements turned out by industry. Hence one may well imagine the importance that should be attached to a system of planning (but by no means standardizing!) urban signs, lettering, and everything that might be defined as "urban arrangements".

As regards the industrial arts, I propose to confine my remarks to the following:

1. There is an important relationship between the object of (pure) art and the industrial or manufactured object, and their influence on each other has always been unquestionable: a same *vis formativa* is often to be found behind the works of "pure" and "functional" art of the same period.

2. The relationship between the form of the object and its function is no longer more than partial; nowadays, the designer is left absolutely free (within wide limits) to create an article that is not only technically sound but also artistically pleasing.

3. A certain rapidity of consumption (obsolescence) should be considered as positive in connection with the form of an object, since this rapidity stimulates the invention of new forms.

4. One should never lose sight of the symbolic-informative element in a manufactured object: there exists a symbolic quotient in every such object that is related to its advertising (or, better, self-advertising) efficiency and which is favourable to the creation of new forms. If, indeed, we analyse this same phenomenon in accordance with the data of the "theory of information", we may equally well affirm that the formal renewal of the object may be considered as being due to a necessity of continually activating its power of information—since its ageing is due to the degree of expectation (of probability) which diminishes on the part of the consumer and is inversely proportional to the absence of information supplied by the object itself.

5. It follows that the New City must be laid out and planned in function of the formal mutability (changeability of shape) of the elements industrially manufactured. (The Brasilia project seems to me a superb example of just such "flexibility in town-planning" that contrasts with the rigidity of the towns of the past—from those planned by Hippodamus of Miletus in the 5th century B.C. to the North American towns standing today, with the possible exception of the baroque towns.)

6. Finally, I consider the closest possible collaboration between architecture and the industrial arts to be fundamental since the aspect of the towns of the future will be determined, not so much by a "synthesis of the major arts" (according to a formula that is now out-of-date) as by a synthesis of the arts which proceed to the integration of the creative-artistic element with the technical-industrial element.

### Application of Operational Research and Mathematical Economics to Urban Phenomena

F. Le Lionnais

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#### 1. What operational research is

a) **Historical development:** Prehistory of operational research. Its inception during the war of 1939-45 (Aerial defense of London. The battle of the ocean-going convoys. Preparations for disembarkment in Normandy etc.). Conversion to civil undertakings (French examples: Commissariat of Atomic Energy, National Railway Company, Electricity and Gas of France, Coal Industries of France, Renault National Company, Pêcheiney, Shell, Organization of Public Works of the Seine, etc.). Present situation (scientific associations, commercial companies, international congresses, specialized literature).

#### b) Practical definition and field of application:

A new way of guiding decision and improving choice.

Relationship between operational research and organization of work, cybernetics, the theory of information, the theory of strategic games, econometry, electronic computers, and automation.

c) **Outline of problems and methods:** The art of decision (experience, intelligence, intuition, detection, etc.) Imperfections: difficulties arising out of a lack of information, discouraging abundance of data, haphazard alteration of situations, possibility of plans being rendered useless by astute enemies, etc.

Transformation of art into a science of decision and choice. Means: calculation of probabilities and statistics. Mathematical scheduling (linear or not). Theory of waiting lines. Problem of the commercial traveller (travelling salesman), etc.

Avoid any confusion between ends and means.

#### 2. Application to urban phenomena:

Most of the work done up to date is recent and results have not been published.

a) **Demography:** Analysis designed to separate the influence of immigration from that of natural growth. Power of attraction of the city and interchange with other centres. Forecasting how the population will evolve in the near future—with division according to age and other categories—and consequences from the point of view of a school policy, housing programme, etc.

#### b) Economics: Relations between inhabitants:

1. of the same quarter; 2. of different quarters. Reciprocal influences between the structure of quarters and the behaviour of their inhabitants. Necessary elements for the advent of a true collective way of living. Study of the stability of city revenues, influence of contingency, consumption structure, savings and investment capacity. Rational concept of municipal administration. Cost of development of the city after it has come into being.

c) **Equipment:** Desirable dwellings and structures of quarters (sections of town). Collective equipment to be provided (public services, primary schools, secondary or high schools, technical or specialized schools, universities, hospitals, motion picture theatres, theatres, museums, public gardens, athletic grounds and stadiums, etc.). Affluence to shops of various types, etc.

d) **Circulation of vehicles and pedestrians:** Studies made on the basis of a thorough knowledge of housing, work premises, commercial or leisure centres, psychology of the inhabitants, etc., taking into account the differences between the months of the year, the days of the week, the hours of the day, etc.

e) **Architecture:** Choice of ground, dimensions, forms and materials, in function of the data and conditions imposed upon the architect and by the architect (from the technical, economic, social and aesthetic point of view).

#### 3. Relationship between the town-planner and architect and the specialist in operational research:

a) **A basic principle:** Relations must be established on an upper level.

b) **What should be supplied to operational research:** Information of two kinds: 1. The ends (how an attempt may be made to measure more or less subjective motivations); 2. The conditions and the means.

c) **What operational research does:** Models (explanation of this term). Patterns of behaviour (sometimes, with the use of electronic computers). Compilation of a dossier to be handed to the ruler or ruling authority. This dossier does not impose a decision but guides the choice of a decision by the town-planner, the architect or the ruler.

d) **What can be expected of operational research:** Instead of (local) suboptimizations, a (global) optimization. Importance of this notion; examples.

The microscope and the telescope increase the power of the eyes, but cannot replace them.

e) **What remains to be done by the rulers:** Return to the art of decision (voluntary or involuntary omissions; backing uncertainties; gambling). The ruler will be the only one to decide.

### The validity of Art Education

Sir Herbert Read

In almost every country in the world there is now a realization that education through art (rather than art education) is a subject that transcends the narrow categories of vocational or specialist education.

The reasons for this are complex, but if I may use this opportunity to summarize a complex subject, I would say that though the need for a reform in the methods of art teaching as such have for long been apparent, and have indeed for long been recognized by all but a few die-hards of the academic tradition, the more basic implications of the movement are still not widely appreciated by the general public.

Education through art has a more than vocational or professional significance for two reasons. The first of these is psychological. This reason was stated clearly enough by Plato also, more than two thousand years ago. The development of an integrated personality, a peaceful and harmonious soul, depends on the capacity of the individual to establish an equilibrium between the inner world of instincts and desires and the outer world of intractable matter: on the ability to mould our environment into satisfying (and Plato would add, ennobling) patterns. Psychic equilibrium (or sanity) implies for man something more than a capacity for survival in the biological sense. Since we have evolved self-consciousness, we require, not merely animal satisfaction, but the mental condition which we call variously contentment, serenity or happiness. The creative activity, the capacity to mould our environment into satisfying patterns, is the most direct and positive way of achieving this mental condition.

Part of the outer world to which we have to adapt ourselves consists not only of things, but also of other people, and from this fact we may also conclude that education through art has a more than professional significance. We live in group-families, cities, nations. We need to communicate with these 'other people', and for that purpose we have developed various languages. To express our rational thoughts we have a system of signs, highly organized into word-systems and logical syntax. But a verbal language cannot

communicate our irrational, or super-rational, moods, emotions, intuitions. For that purpose we have developed symbolic discourse, a language not of words, but of icons—'perceptible forms expressive of human feeling' (Susanne Langer). Art is a generic name for this symbolic language in all its modes. The function of art is to create and perfect the forms that constitute this symbolic language, with the intention of conveying to human sensibility a kind of knowledge that cannot be conveyed by any other means.

On the exercise of this creative activity depends the development of sensibility itself, and it is for this reason that art is so important in the intellectual and even in the productive (industrial) life of mankind. Fundamentally, the sciences depend on instruments sharpened by the arts.

A people cannot become a nation, in the cultural or historical sense, until the communal life is expressed in appropriate and enduring works of art. However harmonious in behaviour and serene in temperament, a man is not happy unless he can participate in group activities. Most activities of this kind are in the nature of games and play, which we should not deplore. Art itself is a kind of play, and indeed, as Plato again said, life itself is best regarded as a kind of play. Most play exhausts us physically (pleasantly so); but art is a kind of play that vitalizes us—above all, vitalizes the community. That is why, in the long perspective of history, the periods that stand out distinctively and elicit our deepest sympathy and admiration are those in which art has flourished.

### Marcello Nizzoli

Alberto Sartoris

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Drawing his inspiration from methods which formerly produced the differentiated rhythm of innovations succeeding each other through the ages, Marcello Nizzoli devised one of the creative methods underlying today's innovations.

Twenty years after they were done, Nizzoli's mediterranean inventions remain valid for today's builders.

It seems that, once more, we are facing here an architecture which has kept its pristine strength and initial dash, the full bloom and exuberance of its renovating essence. It is very difficult to give the right idea of an aesthetically elaborate work when resorting to scientific and logical means only. But Nizzoli, who knows how to rule out any arbitrary chance, proves that the principles of functional building cannot give up their basic condition: if they stick more and more to their task—to make, of architecture, built spaces—they remain intensely up to date.

### Felix Candela

Alberto Sartoris

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To understand the polyvalent work of Felix Candela, it is not essential to consider the field of new architecture as a twofold world.

Today, one does not yet attach enough importance both to the special regulation of which was born the unusual achievement of Felix Candela, and to the influence now exercised by these realizations. Like any self-respecting and clever Spanish architect, Candela does not restrict himself to just lay out plans, for he also works them out and even takes a personal part in the very building.

A great technician and plastic modelling expert with regard to light vaults, laminated ferro-concrete shells, thin incurved wings, bold groined vaults, fan-shaped manifold overhangs, 'inverted umbrella' roofings, square or triangular ground domes, structures on pillars, composite structures and movable frame-works,... Candela made skilful use of hyperbolic paraboloids, and of straight generating lines, in most of his works.