Architecture, Essay on Art

by Etienne-Louis Boullée

Part of MS Françai's 9153 Bibliothèque Nationale, Paris

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Architecture, Essai sur l'art forms part of the Boullée papers and notes. These are bound in one volume, preceded by an inventory, obituary notice, notes on architecture and art and reports on competitions in MS and in print. There are also drafts of letters and several notes in Boullée's own hand. From page 40 to page 65 in the MS is found the draft of the *Essai*, which begins on page 69. Particularly revealing is the description of a young man, destined to be an architect, whom Boullée sent on to David in order to study painting. It corroborates the generous and unembittered attitude which Boullée displayed up to his death (MS Français 9153 p. 38v). In addition to a new translation of Boullée's *Essai*, its first appearance in English, the original French text has been included in this book. In order to preserve its character, the authentic eighteenth century spelling has been maintained, although misleading errors have been corrected. The accents and punctuation have been adapted to present use in order to facilitate reading. It is to be noted that Boullée's spelling is idiosyncratic, even for the eighteenth century. *Effet* he spells with an *accent aigu* on the first "e", *Gots* and *Goths* are both found in his text, and his capital "S" is sometimes almost indistinguishable from the small one. The great number of erasures make it certain that the text is in the master's own hand. It reveals the interest in minute detail coupled with philosophical thought so characteristic of his drawings. The original pagination of volume 9153 is here shown in the inside margins of the original French version.

To Men who cultivate the Arts

Dominated by an excessive love for my profession, I have surrendered myself to it completely. But although I have yielded to this overweaning passion, I have made it a rule that I shall work for the benefit of society and thus merit public esteem.

I should confess straightaway that I have refused to confine myself to the exclusive study of our ancient masters and have instead tried, through the study of Nature to broaden my ideas on my profession which, after much thought, I consider to be still in its infancy.

What little attention has been paid in the past to the poetry of architecture, which is a sure means of adding to man's enjoyment and of bestowing on artists the fame they deserve!

That is my belief. Our buildings—and our public buildings in particular—should be to some extent poems. The impression they make on us should arouse in us sensations that correspond to the function of the building in question. It seemed to me that if I was to incorporate in my Architecture all the poetry of which it was capable, then I should study the theory of volumes and analyse them, at the same time seeking to understand their properties, the power they have on our senses, their similarities to the human organism. I flattered myself that if I went back to the source of all the fine arts I should find new ideas and thus establish principles that would be all the more certain for having their source in nature.

You who are fascinated by the fine arts, surrender yourselves completely to all the pleasure than this sublime passion can procure! No other pleasure is so pure. It is this passion that makes us love to study, that transforms our pain into pleasure and, with its divine flame, forces genius to yield up its oracles. In short, it is this passion that summons us to immortality.

It is to you who cultivate the arts that I dedicate the fruits of my long vigils; to you who, with all your learning, are persuaded—and doubtless rightly so—that we must not presume that all we have left is to imitate the ancients! Judge for yourselves whether I have understood what no one before me, to my knowledge, has attempted to understand.

"Amis éclairés des arts!
Si de vous agréer je n'emporte le prix,
j'aurai du moin l'honneur de l'avoir entrepris"[2]
La Fontaine*

* Friends enlightened by the arts!
If I have not won the prize for pleasing you
I shall at least have the honour of having tried

Introduction

What is architecture? Shall I join Vitruvius in defining it as the art of building? Indeed, no, for there is a flagrant error in this definition. Vitruvius mistakes the effect for the cause.

In order to execute, it is first necessary to conceive. Our earliest ancestors built their huts only when they had a picture of them in their minds. It is this product of the mind, this process of creation, that constitutes architecture and which can consequently be defined as the art of designing and bringing to perfection any building whatsoever. Thus, the art of construction is merely an auxiliary art which, in our opinion, could appropriately be called the scientific side of architecture.

Art, in the true sense of the word, and science, these we believe have their place in architecture.

The majority of Authors writing on this subject confine themselves to discussing the technical side. That is natural if we think about it a little. It was necessary to study safe building methods before attempting to build attractively. And since the technical side is of paramount importance and consequently the most essential, it was natural that this aspect should be dealt with first.

Moreover, it must be admitted that the beauty of art cannot be demonstrated like a mathematical truth; although this beauty is derived from nature, to sense it and apply it fruitfully certain qualities are necessary and nature is not very generous with them.

What do we find in Books on architecture? Ruins of ancient temples that we know were excavated in Greece. However perfect these examples may be, they are not sufficient to provide a complete treatise on art.

Vitruvius's commentator lists for us everything an architect should know. According to the commentator, his knowledge must be universal.

In François Blondel's pompous preface we find a description of the excellence of architecture. The author informs us that *to punish his people God threatened them with taking away their architects*. I have heard wits exclaim, "You must be among the chosen few to dare to take up that profession!"

Reader, you will be astonished to learn that neither in this pompous preface nor in Vitruvius's commentator do I find any indication of the meaning of architecture. What is more, neither of these authors has any notion of the basic principles on which their profession is based. My opinion may offend some people to begin with; but it is easily justifiable for my suggestion is in fact taken from one of the two authors just quoted.

You are familiar with the famous quarrel between Pérault, the architect of the Peristyle of the Louvre and François Blondel, the architect of the Porte St. Denis. The former denied that architecture had its source in nature: he called it fantastic art that was pure invention. When François Blondel tried to refute Pérault's opinion, the arguments he used were so weak that the question remained unsolved. When I raised it again, I did not get any satisfactory answer. On the contrary, I soon became aware that most educated men shared Pérault's opinion.[3]

And now Reader, let me ask you, "Am I not to some extent justified in maintaining that architecture is still in its infancy, for we have no clear notion of its basic principles?"

In common with all educated men, I admit that tact and sensibility can result in excellent work. I admit that even artists who have not acquired sufficient knowledge to search out the basic principles at the root of their art will nevertheless be competent, provided they are guided by that gift of Nature that permits men to choose wisely.

But it is nonetheless true that there are few authors who have considered architecture from the artistic point of view; what I mean is that few authors have attempted to study in depth that side of architecture that I term art, in the strict sense of the word. We have some precepts based on good examples but these are few and far between.

Vitruvius's commentator[4] does inform us that a prerequisite of architecture is a knowledge of those sciences related to geometry, such as Mechanics, hydraulics and astronomy, and also Physics, Medicine, etc. He concludes by asking for some knowledge of the fine arts. But, if we consider that science and the fine arts both have their place in architecture considered as art, and since, moreover, Pérault defines his architecture as "fantastic", François Blondel in his rebuttal has not proved the contrary, and nor has anyone else up to the present; if we succeed in discovering that basic principles of architecture and what is their source, then I believe that, without rashness, we can conclude that these principles have remained unknown or at least have been neglected by those who have discovered them.

I have met competent men who have objected that since the discussion between Pérault and François Blondel had degenerated into a quarrel and that they were therefore overcome by anger and a spirit of rivalry, no conclusion should, under the circumstances, be based on their pronouncements for Pérault's true opinions were certainly very different from those he professed.[5] However, one of those who had spoken thus confessed that the question was difficult to solve. At the Academy, I heard him read a memorandum debating this question without coming any closer to a solution.

When contemplating the Peristyle of the Louvre in the company of other Architects, I have on occasion chosen the moment when they were lost in admiration at its beauty to declare a completely opposite opinion. As you can well imagine, they asked me to explain myself. Then I reminded them of Pérault's opinion. I said to them, "You admire this work of art but the architect himself has admitted that it is based on pure fantasy and owes nothing whatsoever to nature. Your admiration is therefore the result of a particular point of view and you should not be surprised to hear it criticized, for the so-called beauty that you find in it has no connexion with nature, which is the source of all true beauty." I added, "You may admire the techniques used in its construction and I admit that it is a competent construction, even one of Genius, but in view of the architect's own

admission, I believe that when you think you are admiring what you call the beauty of its architecture, you are in fact admiring what your eye is accustomed to in something that has no true beauty." My colleagues stammered a few words without giving me an answer. I was not surprised for it is not easy to explain what the beauty of the Peristyle of the Louvre or of any other monument has to do with Nature, if one has not given deep thought to the matter. What does surprise me is that no one has tried to elucidate an objection of such importance.

What, then, has impeded the progress of that part of architecture concerned with art in the strict sense of the word? This is clear to me.

For an art to attain perfection, it is not sufficient that the men who practise it love it passionately. It is also vital that there be no impediment to the studies they must undertake. Their genius must be able to spread its wings freely and they must be encouraged by the expectation that their efforts will be rewarded.

Let us imagine now that a young Architect makes some progress and begins to make a name for himself and to win the confidence of the Public. He will be overburdened with a stack of requests and details of all kinds and forced to devote all his time to the contracts which are given him. Because he is continually busy with the procedures made necessary by the confidence shown in him, the artist can no longer contribute to the progress of his art and consequently cannot hope to win the true glory to which he could have aspired. He cannot give sufficient time to the study of his art and thus finds himself forced to abandon it. You will say that the architect should refuse lucrative business so as to be able to pursue his purely theoretical studies. Alas! Who would willingly sacrifice a fortune that is offered him and which, in many cases, he desperately needs? You will say that such a sacrifice should be easy in view of the expectation that he will one day be commissioned to build several great buildings. But how can he really believe in such expectations? The opportunities are so few. How can he be sure ten or fifteen years in advance that his services will be used by those in power at the time. You will perhaps reply that a worthy man has the right to expect just that. And I would answer you, "Will justice be done? Can he really expect to be given preference?" I credit patrons with the utmost honesty and the purest intentions and yet I am forced to admit that their lack of knowledge often leads them to act blindly, and that it is a lucky chance when they choose a competent man. How many times preference has been given to ignorant schemers at the expense of worthy men who spend their time working and do not scheme!

How preferable is the fate of Painters and men of letters![6] They are free and independent; they can choose their subjects and follow the bent of their genius. Their reputation depends on no one but themselves. They have exceptional talent? Then no human force can prevent it flowering. Whether they distinguish themselves in the way of all great men who arouse our admiration; whether they fill our hearts with voluptuous pleasure as Lucretius did with heady words or whether they say with Correggio, "I too am a painter", they enchant us with the grace of their inimitable pictures. Whether, by vying with the genius of Raphael who gave us the sublime image of the Creator unravelling chaos, they hold all our faculties in suspense and, in imitation of the immortal statuary of Greece, offer us gods that incorporate all the majestic beauty of the human race; whether they succeed in gathering a rich harvest from the vast store that Nature has provided for them and their names are handed down gloriously to posterity, they can procure pure happiness by themselves and every one of them is justified in saying, "All my fame I owe to myself alone."

These are the incomparable joys and incalculable advantages of which the young Architect is deprived for his talents would remain buried if he devoted all his time to Study. He is obliged to sacrifice the latter if he is to become well known to those in power, without whose goodwill he cannot develop his talent.

This is without doubt an abundant source of acute pain and bitter regret to those who care passionately about their profession; and so I was not surprised when I heard tell that a very competent man, who had suffered the privations I have described, was in the throes of the deepest despair. I would not be surprised either if some architects thought I was exaggerating. But I am sure that such men would be architects in name only and that joy to them would mean wealth.

However, suppose we assume for a moment that my opinions are in some respects false. Suppose we assume that an architect is in the most advantageous position possible, i.e. he has talent, money and patrons. Such advantages are extremely difficult to come by all together and where will they lead him?

It is a fact that when the most straightforward individual starts to build, he sorely tries the patience of his architect, with whose decisions he rarely concurs.

It is also a fact that those in high places who give contracts for public monuments are not in general any more amenable than private individuals. And so what happens? What happens is that the architect finds that he is obliged to obey orders from above and abandon his best ideas. What is more, if the architect is very gifted, his projects will be even less acceptable to his judges who will not be sufficiently enlightened to either understand or appreciate the beauty of his designs.

The gifted architect will not be understood and this will cause him a thousand irksome setbacks; and if he wants to keep his position, then he must refrain from any resistance; he must not listen to the voice of his genius but descend to the level of those he must please. It is evident that this flexibility is difficult to find in an exceptional man; and since in architecture, there is often a curb on genius, as we have demonstrated, it is consequently very difficult to find a gifted architect in a position where he can produce good architecture.

An architect can never be sure that he will be given the opportunity to develop his truly superior genius by being made responsible for one of those public buildings that should bring glory to the country that has ordered them and should arouse the admiration of all connoisseurs.

If he succeeds in being chosen to begin such a project, will he be permitted to complete it? What a sorry example we have before us in the heart of our capital city. How many centuries ago did work begin on the Palace of the Louvre! For example, the façade giving onto the Tuileries Gardens, what a rhapsody! The centre front projection is by different hands whose individual styles are easily recognizable. The

back projection and the corner pavilions are also by different architects. It seems to me that this Palace can be compared to a poem, each part of which is composed by a different poet.

But, you will say, in spite of all these impediments to progress, we do have masterpieces that are evidence of the beauty of architecture and demonstrate the perfection it has attained. My own views on this will be revealed later and, meanwhile, I will merely state that if architecture had acquired the perfection attained by the other arts, and if there were as beautiful examples, we would not today be reduced to trying to establish whether architecture has its source in nature or whether it is pure invention. I can certainly maintain, without fear of shocking anyone, that a demonstration is clearly needed since the architect of the Peristyle of the Louvre considers that all famous monuments are merely products of the imagination.

I feel I must confess straightaway that I myself believe that there is a great difference between architectural masterpieces and those which arouse our admiration in Painting, sculpture and Poetry.[7] This is a consequence of the observations I have made above on the advantages of the Poet and the Painter. The latter have not been hampered in their choice of subject; they have exhausted every subject, whereas in the whole of Europe we can find very few examples of beautiful architecture. And so, if we want to affirm that architecture is the equal of the other arts; what proof do we have? It is certain that for the purposes of comparison there are nowhere near as many masterpieces in architecture as in the other arts and that it is only possible to measure the success of an art through the plethora of experiments of all kinds.

I am reminded of a rather curious conversation. I was in the country with an art lover and a young Painter. We were taking a walk together while discussing painting[8] and I was speaking to the art lover. I extolled one of the most [beautiful] pictures of Vovhemens that we had seen together. As this picture had given me enormous pleasure, I was praising it passionately. The art lover remained unmoved. No one is more exacting than a man who is not conversant with a given art for he is unable to imagine all the difficulties the artist has had to overcome. He has no pity for him and believes that everything is possible. The art lover pointed to nature and said ironically, "Vovhermens has forgotten so much." I quickly replied, "You are paying Vovhermens a greater tribute than you realize when you compare the works of that great master to nature. Do you really think that the work of humble mortals can withstand the comparison you are suggesting?" "What! They are comparable with the creations of the Divine Being . . . the Divine Being!" cried the young painter. "If he would come down to earth and deign to stoop so low as to use only the means at our disposal, then, Sir, you would have a fair appreciation of our great men." We could not but perceive the truth in the young man's outburst. Supposing that we had no knowledge of an artist's techniques and had never seen anyone paint. If we were handed a palette after seeing a picture that was so true to life that we could not believe it to be real—such pictures do exist—we would not believe that it was possible to create with so little, something that had made such a vivid impression on us. How is it possible to imagine that with five or six different colours, the multitude of colours, the nuances, all the effects of nature can be reproduced! How is that man can convey the warmth and freshness of the air, can reproduce the effects of light? How can he have succeeded in drawing the passions that move us and by revealing them to us alive on the canvas, make us feel them in our very being?

Perhaps, you will object, that if indeed architects have not acquired the high degree of perfection that other artists appear to have attained, this may be because the latter have the advantage that their art is close to nature and consequently more likely to move us.

I would reply that this is the very question I am trying to answer; that what I understand by art is everything that aims at imitating nature; that no architect has attempted the task I have undertaken; and that if I succeed, as I dare hope I shall, in proving that architecture, as far as its relations with nature are concerned, has perhaps an even greater advantage than the other arts—then you will have to admit that if architecture has not made as many advances as the other arts, the blame does not lie with Architects alone, for, I consider, they have an excuse on the grounds of the obstacles listed which have hampered and continue to hamper architecture in its progress towards perfection.

God forbid that it is my intention to offend the distinguished Architects of this age. I respect and love them and the high esteem in which I hold them leads me to believe that they will listen, without displeasure, to the words of a man whose sole aim is to contribute to the advancement of his profession. If I am mistaken, my ideas will hurt no one but myself; I should not be suspected of bad intentions. If, on the contrary, I have understood certain truths, then I shall certainly not upset distinguished men, who have always considered truth with love and respect.

Consideration

of the discussion that occurred between Pérault, architect of the Peristyle of the Louvre, and François Blondel, architect of the Monument at the Porte St. Denis

The Present Problem

Is architecture merely fantastic art belonging to the realm of pure invention or are its basic principles derived from Nature?

Allow me first of all to challenge the existence of any art form that is pure invention.

If by the strength of his mind and the techniques it devises, a man could arouse in us with his art those sensations we experience when we look at nature, such art would be far superior to anything that we possess, for we are

limited to more or less imperfect limitations. But there is no art that we can create alone, for if such art existed it would mean that the Divine Being, the creator of Nature, had endowed us with a quality that is part of His own essential being.

What, therefore, could Pérault have meant by a purely inventive art? Don't we derive all our ideas from nature? And does not genius for us lie in the forceful manner in which our senses are reminded of nature?

I cannot think of any form of fantastic art without imagining aimless, unconnected ideas scattered here and there in no order, aberrations of the mind, in short, dreams. The Architect and engraver Piranesi was responsible for some such follies. Caricatures were invented by Italian painters. The famous engraver Callot has done many grotesque figures. The ancients created chimeras, etc., etc., etc.[9]

All these creations of the imagination are misleading. what do we perceive in such works but natural objects —exaggerated and disfigured it is true—but natural objects all the same. Does that prove the existence of an art based on pure invention? To have the right to advance this alleged possibility, it would be necessary to prove that men could conceive of images that bore no relation to natural objects. But it is beyond all question that no idea exists that does not derive from nature.

Let us listen to a modern Philosopher who tells us, "All our ideas, all our perceptions come to us via external objects. External objects make different impressions on us according to whether they are more or less analogous with the human organism."[10] I should add that we consider "*beautiful*" those objects that most resemble the human organism and that we reject those which, lacking this resemblance, do not correspond to the human condition.

On the Essential Quality of Volumes. On their properties. On their analogy with the human organism[11]

In my search to discover the properties of volumes and their analogy with the human organism, I began by studying the nature of some irregular volumes.

What I saw were masses with convex, concave, angular or planimetric planes, etc., etc. Next I realized that the various contours of the planes of these volumes defined their shape and determined their form. I also perceived in them the confusion (I cannot say variety) engendered by the number and complexity of their irregular planes.

Weary of the mute sterility of irregular volumes, I proceeded to study regular volumes. What I first noted was their regularity, their symmetry and their variety; and I perceived that that was what constituted their shape and their form. What is more, I realized that regularity alone had given man a clear conception of the shape of volumes, and so he gave them a definition which, as we shall see, resulted not only from their regularity and symmetry but also from their variety.

An irregular volume is composed of a multitude of planes, each of them different and, as I have observed above, it lies beyond our grasp. The number and complexity of the planes have nothing distinct about them and give a confused impression.

How is it that we can recognize the shape of a regular volume at a glance? It is because it is simple in form, its planes are regular and it repeats itself. But since we gauge the impression that objects make on us by their clarity, what makes us single out regular volumes in particular is the fact that their regularity and their symmetry represent order, and order is clarity.

It is obvious from the above remarks that man had no clear idea of the shape of volumes before he discovered the concept of regularity.[12]

Once I had observed that the shape of a regular volume is determined by regularity, symmetry and variety, then I understood that proportion is the combination of these properties.

By the proportion of a volume, I mean the effect produced by its regularity, its symmetry and its variety. Regularity gives it a beautiful shape, symmetry gives it order and proportion, variety gives it planes that diversify as we look at them. Thus the combination and the respective concord which are the result of all these properties, give rise to volumetric harmony.

For example, a sphere can be considered as incorporating all the properties of volumes. Every point on its surface is equidistant from its centre. The result of this unique advantage is that from whatever angle we look at it, no optical effect can ever spoil the magnificent beauty of its shape which, to our eyes, will always be perfect.

The sphere provides the solution to a problem which might be considered a paradox, if it had not been geometrically proved that a sphere is an undefinable polyhedron. This paradox is that the most infinite variety is derived from the most perfect symmetry. For if we assume that the surface of our globe is divided into different points, only one of these points will appear perpendicular to it and the rest will be at a multitude of different angles.

The sphere has other advantages: it offers the greatest possible surface to the eye and this lends it majesty. It has the simplest possible form, the beauty of which derives from its uninterrupted surface; and, in addition to all these qualities, it has grace for its outline and is as smooth and flowing as it could possibly be.

The conclusion of all these observations is that a sphere is, in all respects, the image of perfection. It combines strict symmetry with the most perfect regularity and the greatest possible variety; its form is developed to the fullest extent and is the simplest that exists; its shape is outlined by the most agreeable contour and, finally, the light effects that it produces are so beautifully graduated that they could not possibly be softer, more agreeable or more varied. These unique advantages, which the sphere derives from nature, have an immeasurable hold over our senses.

A great man (Montesquieu) once said, "Symmetry is pleasing because it is the image of clarity and because the mind, which is always seeking understanding, easily accepts and grasps all that is symmetrical."[13] I would add that symmetry is pleasing because it is the image of order and perfection.

Variety is pleasing because it satisfied a spiritual need which, by its very nature, likes to be stimulated and sustained by what is new. And it is variety that makes things appear new to us. It therefore follows that variety puts new life into our faculties by offering us new pleasures and it is as pleasing to us in the objects that are part of any given volume, as it is in the light effects so produced.

Grandeur, too, always pleases us whatever form it takes

for we are ever eager to increase our pleasure and would like to embrace the Universe.

Finally, the image of Grace is one which, deep in our hearts, is the most pleasing of all.

Now we have proved that the proportions and harmony of any given volume have their source in nature, we shall return to our consideration of Pérault's assertion as to what constitute the basic principles of architecture.

Examination of the Thesis of Pérault on the basic Principles of architecture

Pérault compares the principles of architecture with those of music; he suggests that the beauty of both lies in correct proportions, and goes on to concede that music is an art because harmony has its source in nature. But he claims that it would be vain to try and prove that there are in architecture in proportions that also have their source in nature and it is for this reason that he considers himself justified in maintaining that architecture is fantastic art based on pure invention.

If Pérault had admitted that harmony was derived nature and had for this reason suggested that music was not fantastic art before the discovery that harmony had its source in nature—a discovery we owe to the sciences—then he would have said about music exactly what he has said about architecture. But he would have been mistaken. For the sensibility of man produced harmony before this discovery was made. Musicians did not know that harmony had its source in nature. Even today many excellent musicians pay scarcely any attention to this question; but their indifference is in no way prejudicial to the development of their talents.

It is obvious that Pérault's assertion was made without due consideration. As I have already stated, artists can produce excellent works of art guided only by their sensibility without any studies to determine the basic principles of their art (by going back to its very roots) Pérault and François Blondel prove my point. They were doubtless competent architects, and yet they falsely applied the principles of music to architecture; they did not realize that these arts bear no relation to one another and have no analogy and that their basic principles are thus totally different.

Consideration of how we can with certitude define the basic principles of an art and of architecture in particular

What constitute to perfection the principles of any given art are those principles from which no deviation is possible.

For example, in music no harmony is possible if the rules are not followed. For it is impossible to produce any chord at all without following the correct progression of notes. It would be vain to try and produce a chord of a third, or fourth or fifth, etc., without adhering to the rules governing chords. It is just the same when they are combined to create greater harmony: whether these Laws are the result of an analogy with the human organism or whether they have their source in nature, the ensuing sounds have made us realize that it is impossible to deviate from them without the result grating on our ears. This proves that the harmonic ratio is the primary law governing the basic principles of the art of music, for it provides the sole means of producing harmony.

What then is the primary law on which architectural principles are based?

Let us consider an example of Architecture that has been imperfectly observed and lacks proportion. This will certainly be a defect but the defect will not necessarily be such an eyesore that we cannot bear to look at the Building; and nor will it necessarily have the same effect on our eyes that a discord has on our ears.

In architecture a lack of proportion is not generally very obvious except to the eye of the connoisseur. It is thus evident that although proportion is one of the most important elements constituting beauty in architecture, it is not the primary law from which its basic principles derive. Let us try, therefore, to discover what it is impossible not to admit in architecture, and that from which there can be no deviation without creating a real eyesore.

Let us imagine a man with a nose that is not in the middle of his face, with eyes that are not equidistant, one being higher than the other, and whose limbs are also ill-matched. It is certain that we would consider such a man hideous. Here we have an example that can readily be applied to the subject under discussion. If we imagine a Palace with an off-centre front projection, with no symmetry and with windows set at varying intervals and different heights, the overall impression would be one of confusion and it is certain that to our eyes such a building would be both hideous and intolerable.

It is easy for the reader to surmise that the basic rule and the one that governs the principles of architecture, originates in regularity and also that any deviation from symmetry in architecture is as inconceivable as failing to observe the rules of harmony in music.

There is no doubt that any disparity in an art based on the principles of Parity is repugnant. Symmetrical compositions are true and pure. The slightest disorder, the slightest confusion becomes intolerable. Order must be in evidence and paramount in any composition based on symmetry. In short, the wheel of reason should never desert an architect's genius for he should always make a rule of the excellent maxim, "Nothing is beautiful if all is not judicious."

Programmes intended to establish that the Study of Nature is necessary to architecture

Monument for the celebration of Corpus-Christi

The aim of religious ceremonies is to induce a state of profound reverence. It is therefore necessary to use every possible means of inducing grandeur and majesty.

Since the feast of Corpus-Christi, as celebrated by the Christians, can be more magnificent than any other feast, it seems to me that we should ensure that it is as splendid as possible by making it a truly unique celebration. I believe

that there should be a place and a monument specifically assigned to the celebration of this feast and yet, even with all the resources of art and genius, it will never attain the magnificence that such a subject calls for. In order to give the monument that I am describing the requisite dignity, I would first choose for it a high place dominating a city: Mount Valerius, for example, or Montmartre near Paris.[14] There I would instal a general seminary; and in this holy place inhabited by the most worthy ministers of Religion, who lead pure, innocent young souls to heaven, here, I repeat, would be the most suitable location for the monument for the celebration of Corpus-Christi. If all the arrangements were suitably impressive, the celebration would be both splendid and magnificent; the whole would be decorated with all that is most beautiful in nature; the buildings would be mere accessories, the base of the repository formed by a superb open-sided Temple crowning the mountain top. The Temple precincts would consist of fields of flowers exuding their sweet smell like incense offered to the Divine Being. Magnificent avenues of trees would line paths laid out in such a way that processions and ceremonies would everywhere be perfectly visible. These avenues would not only connect all the buildings and serve as decoration but also shelter the procession of ministers during the ceremony. These avenues would lead to fertile fields where all the earth's useful crops would be found. In the midst of these auspicious fields nature's first crops would be offered to God and thus thanks would be given to the Supreme Being for his blessings. It is from here that the singing of Hymns giving thanks would bear to the Heavens the adoration and vows of virtuous mortals.

This beautiful place would be the image of all that ensures our well-being; it would fill our hearts with a sense of joy and would be for us a true earthly Paradise.

The beauty of the place and the large throng in attendance would also serve to make the celebration even more impressive! Religious ministers, pure and innocent youth, a gathering of a multitude of men all filled with joy—all these would make this celebration not only moving in its magnificence but truly heavenly.

Monument of public gratitude

If I imagine a nation that is both sensitive and generous, and governed by men who truly merit the title guardians of the fatherland, I must also assume that such a nation will be eager to demonstrate its love and gratitude towards its benefactors. I dare say such a nation will want to convey these feelings in the form of a monument that will bear witness to them for Posterity. How easy it is to understand but how difficult to describe all that we expect when we hear the resplendent title *Monument of public gratitude*.

It seems to me that this monument should be located in a place endowed with all the beauties of nature, with all that serves to preserve life, so that it will seem to say to all who visit it, *"Here before you are all the riches with which the Nation would like to prolong and brighten the days left to its benefactors."*

Where can such ideas be put into effect? To whom can such a noble, such a worthy task be entrusted? To architecture. It is a task for an architect to choose a place where he can make a museum that incorporates all the scattered beauties of nature and where, in addition, we find all that is useful to life and thus all that can serve to prolong life. Finally, the architect of this beautiful place would demonstrate the command of his art, which lies in the use he makes of nature. Here in this place he would, so to speak, give birth to new delights at every step. We would experience the most profound pleasure at the sight of these charming gardens that resemble the Elysian Fields described by the Poets of antiquity and now brought into being through architecture. The charm of these beautiful Lakes mirroring nature and multiplying our pleasure and all the vistas that they offer us give infinite variety to all before us. The tragic appearance of thick woods and gloomy forests, where the lack of light gives us the impression that nature is in mourning and where the unpleasant noise of a stream surging from the depths of the earth makes us think that what we hear are groans, gives us the opposite sensation and makes what is agreeable seem ever more delightful. Moreover, sombre scenes do not always make us sad. The grandeur of Nature raises our spirits and always gives us pleasure. When man is looking down on the earth from a great height and sees it elude his gaze, he is dazzled by the brilliance and beauty of all before him and, rejoicing in its vastness, he is in ecstasy. Finally, everything in nature would be lavished and, so to speak, exhausted in this delightful place made by man, who found nothing but pleasure in the hardest toil.

On the basis of the various scenes that we have attempted to describe and which are an integral part of the monuments described above, it is easy to conclude that when Vitruvius's commentator[15] defines architecture as *the art of building*, he is speaking like a workman, not an Artist well versed in his calling; it is as if a player of music compared his talent with that of the composer of the music.

It is obvious that Vitruvius was familiar only with the technical side of architecture. That at least is what his definition proves; if I confined myself to considering architecture only in the light of Vitruvius's tenets, I believe a more valid definition would be the art of creating perspectives through the arrangement of volumes. But when we consider the scope of architecture, we perceive that it is not only the art of creating perspectives through the arrangement of volumes but that it also comprises a knowledge of how to combine all the scattered beauties of nature and to make them effective. I cannot repeat too often that an architect must make effective nature.

It is impossible to create architectural imagery without a profound knowledge of nature: the Poetry of architecture lies in natural effects. That is what makes architecture an art and that art sublime. Architectural imagery is created when a project has a specific character which generates the required impact.

Character

Let us consider an object. Our first reaction is, of course, the result of how the object affects us. And what I call character is the effect of the object which makes some kind of impression on us.

To give a building character is to make judicial use of every means of producing no other sensations than those related to the subject. In order to understand what I mean by the character or expected effect of different objects, let us take a look at some of the beauties of nature and we shall see that we are forced to express ourselves in accordance with the effect they have on our senses.

What a charming spectacle delights our eyes! What an agreeable day! How pleasant it is! The image of a good life extends over the whole Earth! Nature is bedecked with the charms of youth and is a work of love! Sweet harmony reigns over all our impressions on such a delightful day; and its charm intensifies the colours and our senses are drunk with their freshness, their delicate nuances, their smooth, rich tones. What a pleasure it is to run our eyes over all these things and how agreeable they are; their adolescent forms have a *je ne sais quoi* that emphasizes the smooth flowing curves that barely indicate their presence and adds new charms. The beauty of their elegant proportions lends them grace and unites in them all things that have the gift of pleasing us!

But summer comes and forces a change of mood. The glorious light makes us drunk with joy and our sense of wonder has no limits. This pleasure is truly divine! What pure happiness we feel in the bottom of our hearts at this spectacle! What ecstasy! No, we cannot possibly give expression to it!

At this season nature's work is done; everything is the image of perfection; everything has acquired a clearly defined form that is full-blown, accurate and pure. Outlines are clear and distinct; their maturity gives them noble, majestic proportions; their bright, vivid colours have acquired all their brilliance. The earth is decked out with all its riches and lavishes[16] them on our gaze. The depth of the light enhances our impressions; its effects are both vivid and dazzling. All is radiant! The God of day seems to inhabit the earth. Nature is adorned with a multitude of beautiful things and offers us a splendid vista of magnificence.

But autumn has already taken the place of summer and raises our spirits with new pleasures; it is a time of fulfilment; spring had already awakened our desire for it. The earth, still adorned with Flora's dazzling gifts, is now covered with Pomona's treasures. How varied are the images! How gay and smiling! Bacchus and the gentle Goddess of Folly have taken over the earth. The God of mirth, the spirit of our pleasures, makes our hearts drunk with joy! It is as if the Goddess wanted to give pleasure to the God by disguising the earth. Colours are mixed, variegated, mottled. Forms are picturesque and have the appealing attraction of novelty; variety had added to their spice and the play of light and shadow produces countless surprise effects which are all delightful.[17]

But fine days are superseded by the dark winter season. What a sad time! The torch of heaven has disappeared! Darkness is all around us! Hideous winter comes and chills our hearts! It is brought by the weather! Night follows in its wake, unfurls her sombre shades over the earth and spreads darkness everywhere. The shining crystal of the ocean is already tarnished by the blast of the north wind. What remains of the pleasant forest are no more than skeletons and nature is in mourning. The image of the good life has faded to be succeeded by that of death! Everything has lost its brilliance and colour, forms sag, outlines are hard and angular and to our eyes the denuded earth resembles an all-embracing tomb!

Oh, Nature! How true it is that you are the book of books, universal knowledge! No, we can do nothing without you! But although each year you begin again the most interesting and instructing course of study that exists, how few men pay attention to your lessons and know how to benefit from them!

It follows from these remarks occasioned by the seasons of the year that to create something beautiful we must, as in nature, ensure that the general impression given is gentle; colours must be soft and muted, their shades delicate; shapes must be flowing with light, elegant proportions.

The art of making things agreeable stems from Good Taste.

Good Taste is a delicate, aesthetic discernment with regard to objects that arouse our pleasure. It is not enough to simply put before us objects that give us pleasure. It is when we choose among them that our pleasure is aroused and we feel delight in the depths of our being.

Let us concentrate on architecture and we shall see that here Good Taste consists of providing more delicacy than opulence, more subtlety than strength, more elegance than ostentation. Thus it is grace that is indicative of Good Taste.

We have observed that during the summer season the whole of nature is bathed in light which produces the most magnificent effects; that this life-giving light was diffused over an extraordinary multitude of objects all with the most beautiful forms, all shining with the brilliance of the brightest colours, all of them developed to the full; and that the result of this beautiful assembly was a vista of magnificent splendour.

As in nature, the art of giving an impression of grandeur in architecture lies in the disposition of the volumes that form the whole in such a way that there is a great deal of play among them, that their masses have a noble, majestic movement and that they have the fullest possible development. The arrangement should be such that we can absorb at a glance the multiplicity of the separate elements that constitute the whole. The play of light on this arrangement of volumes should produce the most widespread, striking and varied effects that are all multiplied to the maximum. In a large ensemble, the secondary components must be skilfully combined to give the greatest possible opulence to the whole; and it is the auspicious distribution of this opulence that produces splendour and magnificence.

It is just such expanded images that I have tried to

produce in several of my projects, notably the Palace at St. Germain-en-Laye, the Metropolis and Newton's Cenotaph. I have tried to avail myself of all the means put at my disposal by nature and to convey with my architecture the image of grandeur. I would suggest that the reader consult my plans in place of all possible explanations, for I am persuaded that what should be required of an Artist above all is not that he explain well but that he execute well.

We have observed that the smiling images of autumn were produced by great variety, by the play of light and shadow, by picturesque forms and their lack of similitude, by the unique and bizarre nature of their variegated, mottled colours.

It follows from these remarks that if we are to produce gay, smiling images, it is necessary to be familiar with the art of diversification; for this one must depend on flashes of inspiration for they make objects new, different and more stimulating, and diversify design. They utilize picturesque forms so as to disguise and individualize them. They make light play on shadow to produce stimulating effects that by skilful mixing produce mottled colours; through fortunate, reasoned analogy, through slender, graceful proportions, they give architecture an aspect of lightness. By ingenious combination and unexpected progressions they create unexpected vistas that proffer the stimulating attraction of novelty.

This type of architecture would be suitable for Vauxhalls,[18] fairs and health spas which almost always have picturesque locations, for a Theatre with pleasant surroundings, or agreeable public promenades, such as Boulevards, etc., etc.

We have observed that during the winter season, the light is sad and gloomy, that everything has lost its brilliance and its colour, that outlines are hard and angular and that the denuded earth has the appearance of an all-embracing tomb.

It follows from these observations that to produce a sad, sombre impression, it is necessary to try to present, as I did in my funerary monuments, an architectural skeleton through the use of an absolutely bare wall[19] and to convey an impression of buried architecture by using only low, sagging proportions buried in the earth; and, finally, by using light-absorbing materials, to create a black image of an architecture of shadows outlined by even darker shadows.

This type of architecture based on shadows is my own artistic discovery. It is a new road that I have opened and, if I am not mistaken, Artists will not refrain from following it.[20]

I will add one last observation to those I have already made—one that seems to me of great importance. It is that nature never deviates in its forward march, and everything in nature is striving towards the goal of perfection. Does Nature offer us agreeable images, noble images, pleasant images, sad images? In all its different images nature retains the individual character of things in such a way that nothing is in contradiction, neither impressions, nor forms, nor colours; and all things in all respects have a perfect relationship, perfect analogy and harmony.

This is, for me, a critical moment: I am going to put my case before the Reader by describing my own work. He cannot accuse me of trying to force it on him to make my case seem favourable, for I shall strongly criticize some famous monuments and in so doing I shall provide weapons against myself which he can easily use to destroy my own work utterly. I am aware of it but I am writing to further the advancement of the arts and I cannot make an effective contribution if I do not tell the truth, even against myself. What author is not aware of his weakness? Who does not desire to go beyond his capabilities? All able men are tormented by a sense of their own inadequacy. They cannot hide it from themselves. The more knowledge they have, the more dissatisfied they are with their own work and the more often they find they are at war with themselves.[21]

Basilicas

When an Architect intends to begin work on a project, he should first of all concentrate on understanding its every essential aspect. Once he has fully grasped such aspects, then he will perhaps succeed in giving the appropriate character to his subject; and further study and speculation will enable him to grasp the fundamentals of the problem he has set himself.[22]

An edifice for the worship of the Supreme Being! That is indeed a subject that calls for sublime ideas and to which architecture must give character. But to give character to one's work, it is necessary to study the subject in depth, to rise to the level of the ideas it is destined to put into effect and to imbue oneself with them to such an extent that they are, so to speak, one's sole inspiration and guide. But what Artist having tried to rise to the contemplation of the Creator, will dare to design a Temple for him!

Here the limitations of art correspond to those of the human mind; and no one can flatter himself that he is able to go beyond them. Man gives homage to the infinite Being in vain; for such homage is, inevitably, in proportion to the weakness of those who offer it; with such a subject all man can do is to fulfil his religious duty as best he can—and that alone is a tremendous task.

I do not know whether the architects of our modern temples had these thoughts in mind. From their designs, it is clear that they have tried to incorporate nobility, splendour and opulence. We should doubtless be grateful to them for the order and proportions of their architecture. But does their art go so far as to induce a sense of veneration at the mere sight of their Temples? Are we afraid of desecrating them by recklessly setting foot there? Do they inspire the profound respect that results from religious belief? Do they have that quality of grandeur belonging to genius that surges forth and imposes itself on the onlooker, filling him with

of the painting would be seen to advantage and the eye would have difficulty in supporting the brilliance of these magical effects. The celestial vista would derive its sublime character solely from natural sources and would thus bear witness to the fact that if there is an art which enables us to avail ourselves of nature, then it is unquestionably the most worthy of all the arts.

In view of the reflexions I have made on the impotence of men who dare to erect temples to the Divinity, you will not imagine that I am satisfied with my work. No, that I am certainly not. My pretensions (if, that is, an artist can permit himself to have any in such circumstances) would be confined to allowing me to assume that the arrangement of my temple comprises some techniques which had not been obvious up to now, and which will enable my successors to benefit from the advantage I am giving them, as I have benefited from those given to me by our forebears. What I find satisfying [an additional "satisfying" erased] at present is that I believe that I was the first to devise this way of introducing light into a temple and that my views on this subject seem to me both new and philosophical.

Uneducated arguers or those given to dishonesty will perhaps exclaim, "What is this innovation that the author claims he is offering us? Is it not a fact that part of the Dome of the Invalides is lit, as he wants to light his temple, and that the source of the light in the upper vaulting is invisible?" A frivolous objection. What a difference there is between the aims of that architecture and those that I am professing! Is it not obvious that the sole intention of that architect was simply to introduce daylight into that large vaulting to illuminate the Painting. With no other intention? This is so true that if he had any special aims similar to the one I am suggesting, he would certainly have camouflaged the main apertures which are located in his cupola. These apertures are so detrimental to the decoration of that part of the Dome, and are in such contradiction to it, that it is impossible to look at the painting here or anywhere else without finding a solid mass blocking one's view. Isn't there direct lighting in the chapels and the main temple? Doesn't the light enter here in the same way as in all our modern Churches, where the light, *because it is not devised for the objects*, is detrimental to them instead of setting them off to advantage? Isn't is cause for lamentation that in the Invalides and elsewhere, the main figures which decorate the chapels are placed above the altars and lit from behind?

These facts prove that the aims of this Architect[32] have no connexion with the philosophical aims that guided me when I was searching for a means of arousing in men's souls feelings in keeping with religious ceremonies. This was not, however, the only reason that I considered. Of this, too, I must give an explanation.

When light enters a temple directly, art is pitted against nature, especially if there is also Painting. The light is reflected in those places where it falls directly and hurts the eyes; or else the objects are absorbed in the contrasting light. My system is in total opposition to usual practice. I am extremely careful to avoid any conflict between art and nature. I borrow the valuable effects of the latter. I adapt them to art, and it is these gifts of nature that enable me to raise art to the sublime.

Theatre

A theatre is a monument to pleasure; what delicacy and what good taste must preside over its construction!

The public attending our entertainments can, it seems to me, be compared with the Gnidian festivals so agreeably described by Montesquieu. I see the members of the more attractive sex enter our places of entertainment, giving the impression that they are gathered there only to vie with each other's charms, to delight our hearts, to demonstrate their power and also to receive the respects of the presiding Genius which, inspired by love and the Graces, often takes pleasure in celebrating the attractions of this enchanting sex. How true it is that a place of entertainment should be thought of as a temple to Good Taste. In this beautiful temple I can see Genius and Good Taste combine to erect a magnificent amphitheatre where brilliant rivals make their appearance. I see the latter raised on a superb throne from which they enjoy the effect of their charms and from which they spread that delightful confusion aroused by an abundance of pleasure and force man to exclaim, "My soul is not equal to it."

I can also see the decoration in the interior of the temple offering in its most pleasant guise all that is attractive and pleasing; everywhere there is a festive spirit that heralds and induces pleasure; that it has its abode and refuge here is evident from the temple's aspect.

It was during these moments of reflexion and insight that I conceived the project for my Theatre. When I made it public it was rather successful; I had reason to suppose that I would be able to execute it in the centre of the Garden of the Revolution (formerly the Palais-Royal) where the large lake was previously located.[33] This idea impressed me and I tried to design my Theatre so that it would take advantage of all its attractions.

Surrounding walls contribute more than a little to enhancing monuments; thus the Ancients were careful to set them apart to give them dignity, and to surround them in order to multiply the sources of character.

It is easy to imagine the overall effect of an auditorium placed in a pleasant garden surrounded by a Palace and imposing buildings adorned with rows of columns and Arcades. The Public would arrive from all sides drawn either by the lure of the performance or by that of a walk, or perhaps by the desire to enjoy the sight of this large gathering which, with its festive aspect, would embellish the location and make it seem most agreeable. There is nothing more attractive than the image this auditorium would have

offered in the middle of all that beauty.

Determined to refuse all these advantages, I rejected this site in favour of the Carrousel, which has a magnificent location.[34] There I designed an auditorium standing free on all sides. Bordered by the quays and the adjacent streets, this vast site possesses all that one could desire for easy access. One of the Palaces—the most impressive on account of its size and opulence—already decorates this superb setting. One can circulate freely there during the performance, since the Palace courtyards would more than suffice for all the carriages. The isolation of the auditorium would mean that there would be no danger to the neighbouring houses. The most suitable site for this monument would naturally be this large area which does not have the inconvenience of all other sites, where the purchase price would exceed the construction expenses. The auditorium would also be in the neighbourhood of the Theatre warehouse, and would thus be convenient for the running of the theatre. Nothing would be simpler than to connect the auditorium with the warehouse by means of a covered underground passage. Thus the transport of scenery and costumes would cost almost nothing and could be carried out with the utmost speed; and, what is an even greater advantage, it could be done without fear of the ruinous damage which could inevitably result from transporting them in the open.

Attracted by the advantages of this place and thoroughly absorbed in my project, I concentrated on grasping all the fundamentals of it.

I first pondered on the fatal events that have occurred in almost all the large cities of Europe, and which were caused solely by the manner in which our auditoria are built.

A glance at our Theatres is sufficient to convince us that they are gruesome funeral piles and that a spark is sufficient to set them on fire and see them burnt out in an instant.[35] The proof exists in the fires at the two Theatres on the site of the former Palais Royal.

Should the Public fear for its life in a place devoted to its pleasure?

What dreadful confusion, what dire calamities when panic takes hold of people because they apprehend some catastrophe, as happened in the old Italian Theatre!

Such thoughts made me shudder and I told myself that I would not build a Theatre unless I could find a way to make it fireproof.

I thought that I should first arrange for the Public the fastest possible escape, and I think I have succeeded.

At the side of the main entrance to my Theatre is a vast perron climbing the whole height of the substructure and more than 200 feet in width. On the platform of this perron, i.e. on the peristyle of the auditorium, I have placed forty-two French windows that are separated from the boxes only by a corridor and the foyer, so that everyone on this floor can leave almost all abreast at the same time; to be outside the building, that is in safety, they have only to cross the corridor. Nine large doors which open onto the three groundfloor vestibules give the same advantage to those sitting in the pit and the small boxes behind it. The exits do not communicate with those on the first floor. The upper balconies would, in addition, have to descend their respective staircases down to the first level and from there go to the main perron. This would be the shortest possible distance for them to cover. It is essential to note that the forty-two doors opening onto the peristyle would be arranged in such a way that at the slightest alarm, a simple pull on a cord would suffice to open them all at the same time so that the whole auditorium would be nothing but open doors. I have already successfully tried this mechanism at the Ecole Militaire;[36] it consists of a dented pinion to activate the serrated racks which in turn raise the catches of the locks.

It is certain that the mass of exits and their proximity to the façade of my Theatre would be reassuring in moments of danger, but that would not forestall the danger; and I had to try and avoid even the possibility of such an appalling danger.

Fire is dangerous only when it is fed. To avoid feeding it I make no use at all of wood but build with stone and bricks right up to the balconies. Thus the only inflammable parts of the building would be the floor of the Theatre and the scenery. If a disaster did occur, these would burn, but without any unfortunate consequences.[37] But to parry all objections and to reassure the public and the Government that I had taken every precaution, I placed under the whole length of the Theatre a large reservoir of water into which all the wood would fall and be extinguished as the fire consumed the structure.

Moreover, it would be possible to arrange for the floor structure of which I have spoken above to fall all at once in a single piece. Do we not have the proof that much more extensive demolition can be carried out in the removal of the centrepiece of the Neuilly bridge?[38]

I have already stated that I would not use wood in my construction: in fact, since the auditorium of the Theatre would be vaulted, the high runners on top of the Theatre would be of sheet metal, resting on iron rods supported by large, strong hooks; all the service ropes would be of brass wire and enough crampirons to bear their weight would be distributed over the whole curve of the Vaulting and arranged so as to facilitate all the changes and meet all operational needs. These precautions would mean that even if the whole Theatre burned, neither spectators nor the main structure of the building would be in any danger; and in addition there would be no need to fear that the Vaulting of the Theatre would be damaged. I am so sure of this that if I had built this Theatre, as I was given reason to suppose I would, I had decided to sacrifice at my own risk a floor and a set of scenery which I would have set alight to to prove to the Public the effectiveness of my methods.[39]

The problem of ensuring the greatest possible safety was thus solved and it remained for me to turn my attention to the layout and decoration of this monument.

Four large outer Vestibules indicate the main groundfloor entrances. Two of these vestibules are meant for the lower balconies and, on the main entrance side, they are placed in front of the main double staircases that lead to them. Three inside Vestibules lead to the staircases for the other three rows of balconies. By increasing the number of these staircases and vestibules and by dividing them so that none of them communicates with any other, I can forestall the turmoil, panic and confusion of the audience which, until now was inevitable at the exit after any performance.

A vast arcade at ground level surrounds the whole circumference of the building. It communicates with every part of the building and thus relieves congestion. But its main purpose would be to accommodate the servants waiting for

the end of the performance, and to protect them from exposure to the elements. It is arranged in such a way that the servants could arrive everywhere rapidly and without the least confusion.

The staircases leading to the first floor balconies are large with free, simple, easy access. They lead to an extended public foyer which could be agreeably decorated, and located to ensure a most interesting glimpse of it to those entering or leaving the performance.

I have surrounded my auditorium with a fairly solid structure that will completely exclude all outside noise. I have placed my corridors in such a way that they prevent the outside air from directly penetrating straight into the auditorium; for we are well aware of the number of dangerous illnesses and fatal diseases that are caused by neglecting this precaution.

The actors' dressing rooms are on the promenade and directly accessible from the Theatre. The principal actors would only have to cross the corridors and the proximity of the others would be related to the requirements of their work. By this means the Directors could, without leaving the Theatre where their presence is required, give their orders, have the actors called as necessary and keep an eye on everything with unequalled ease. It is easy to understand how such an arrangement would facilitate good servicing.

It is with the same intentions that I have located on top of the Theatre two green rooms, one for the singers and one for the dancers.[40] These would ensure them all the practice they might need without disturbing each other, even during the performance.

A Theatre is destined to create all the scenes that the imagination can conceive and thus cannot offer too large a space to the stage designer. But this space must be in proportion to the size of the auditorium, which is itself restricted by the limits of our vision and hearing and by the number of spectators who can attend the performance. It is doubtless necessary to take account of these indispensable limitations. But the Theatre must nevertheless be as large as possible. Space is also necessary for easy handling of the scenery. It is, moreover, essential to note that depth is more important than width.

In crowd scenes with many actors on stage, the action that takes place at the back of the Theatre perpendicular to the front stage is not very apparent: the actors in the foreground hide those in the second row and so on. The action can only take place and be completely effective diagonally or parallel to the scenery. What is more, the depth of the Theatre, far from increasing the impact of the scenery, can possible destroy it. The multiplicity of the successive frames forces the designer to go into too much detail for them to be perceptible and harmonious; the effect is inevitably monotonous and the piled up sets, far from enhancing the whole, singularly destroy it.

It is by pronounced contrasts that one succeeds: contrasts need hardly more than two or three separate frames on a backdrop. This is the secret of the magnificent scenery that we have often admired at our Italian Theatres, and we would be able to achieve again this beautiful style in the grand manner if the administration devoted to this sector the attention it deserved and entrusted its supervision and execution only to first rate Artists. This interesting aspect has up to now been open to many deserved gibes, which various authors have heaped upon it; and it is about time that we concerned ourselves with the methods most likely to preserve the theatrical illusion.

It is doubtless equally difficult to conceal both the imperfect state of this aspect of our Theatres and the sublime perfection they could attain. There have been smiles and laughter on more than one occasion at the sight of those mobile lines of washing[41] that separate the transverse ribs of the vaulting from their supports; or that move the sky as if it were an image. No method has yet been discovered for making skies and ceilings; I will not describe here ideas that still require exceptionally careful study to be fully perfected. My desire is to see competent artists apply themselves to this aspect and make it the object of their speculations.

There is another aspect that has received even less attention; a mass of observations about it have enabled me to deal with it. It concerns methods of lighting an auditorium according to the effect the work should have presented on the audience. If the title of a play has induced gloomy thoughts, no one seated in a brightly lit auditorium, will not experience some difficulty in tearing himself away from the sensations induced by the brightness of the lighting when the curtain rises and suddenly reveals a sombre scene. The effort he is obliged to make to put himself in the right mood destroys the illusion; the destructive effect on the performance is unknown.

The same process occurs when we are seated in an ill-lit auditorium and are suddenly confronted with festive brilliance. It is true that sometimes these sudden contrasts are preparatory to the auction and serve the ends of the poet who may need instant surprise or a sudden commotion. But that is even more reason for trying to master the creation or prevention of such affects at will; and it is difficult to imagine how many unknown, powerful resources this method can add to the illusion and physical impression made by the entertainment. We saw at the beginning of this section the ideas behind the decoration of the auditorium. As far as possible, I was aiming at the stimulating effect of variety. That is why I surrounded my auditorium with buildings with porticos creating a kind of fairground. I placed a ballroom and concert hall in the middle of these buildings for I considered that I must advertise the pleasures by concentrating them. I found this a pleasing and picturesque way to surround an auditorium and in addition it would be a stimulating contrast to the effect of the Palace opposite.

My Theatre was to be a Rotunda surrounded by a corinthian order. I thought that by using the most pleasing of shapes and the most elegant order, I would ensure that it had appropriate character.

The four principal Vestibules form on the outside four large pedestals destined to support the Famous who were to accompany the muses to the temple of Good Taste. These pedestals mark the limits of the perron which forms the base of the whole building. It is easy to imagine the effect of this perron on a beautiful day, full of elegantly dressed women, embellished in particular by those charms that belong only to French women.[42]

I have made the inside of my auditorium in the shape of a semicircle—undoubtedly one of the most beautiful shapes—for in architecture it is an axion that beautiful shapes are the necessary basis of a beautiful decor. Moreover, this is the only shape suitable for a Theatre. It is

necessary to be able to see and hear perfectly and what shape fulfils these two requirements better than the one whose exactly equal radii give the ear and eye the greatest and most equitably distributed freedom; where no point hides another and where, for this reason, all spectators on the same level can see and hear equally well. Moreover, this shape enabled me to enclose my auditorium with spherical vaulting which not only has the advantage of being a simple form of decoration in good taste, but which is also the most favourable from an acoustic point of view.

I have decorated the inside of my auditorium and I was not afraid to use all the riches of architecture to adorn it by incorporating columns. The proportions and layout I used made me certain that it would be appropriate, agreeable and adequate; I did not want to debase art by calculating the number of extra seats I could make room for. I have enough to meet requirements; and all of them are good. Now that I had satisfied these two needs I could and doubtless even should think about how to give my auditorium a pleasing overall appearance corresponding to its function. I believed that the Temple of pleasure should give us pleasure.

Finally, I wanted to give the most pleasing effect possible and thought that I could achieve it by placing the spectators in such a way that they provided the decoration for my auditorium. In fact, I believe that by assembling and grouping the members of the beautiful sex and placing them in such a way that they provide the bas-reliefs of my architecture, I have given my setting the stamp and character of grace.

The Palace of the Sovereign

This project was completed long before there was any question of a revolution in France. The author thought he should retain it, firstly, because he has not worked solely for France and is convinced that an Artist's ideas should be available to all who might find them useful; secondly, because there is good reason to think that the project contains ideas that could be adapted to other monuments not destined to be a Sovereign's residence!

When an Artist builds a residence for a Sovereign, he must incorporate all the opulence of Architecture and make use of all the splendour and magnificence of the fine arts.

We have already noted that the Ancients added to the dignity of their monuments by building walls around them.

But what type of surrounding wall would meet all the requirements and also contribute to improving the overall effect of a Palace? That is what we shall now consider.

The impact of splendour and magnificence has its source in the grouping of objects that arouse our admiration. That is why I decided that the surrounding walls of the Palace of the Sovereign should consist only of the palaces of the court nobles; that was the only form of wall that would be appropriate and that this large, majestic group of buildings would result in the most exquisite effect; for example, its expanse would make an extraordinary impression on us, bringing us closer to infinity; its magnificence would dazzle us with its impact; and, finally, the splendour resulting from the grouping of beautiful objects would arouse in us a sense of wonder.

It was on the basis of these ideas that I wanted to begin work. But when I began to reflect on how to plan this large group of buildings, I found myself at a standstill as I shall now describe. I hope the reader will from time to time allow me to put him in my place.

I said to myself, "The palace of a Sovereign, which would be surrounded by the palaces of all the Princes of the Court, should without doubt be as large as possible. And so, on account of its size, I must vary the effects. But if, in order to preserve an effect of perfect symmetry—which is the most beautiful element in architecture—I decide to decorate all the Palaces in the same manner, won't this repetition make the whole monotonous? If, in order to preserve the not inconsiderable and beautiful effect of elongated lines which results from symmetry combined with regularity, I subjected all the buildings to a common height, would I be able to incorporate variety too? But if, in order to avoid the defect of monotony and in order to introduce variety throughout, I tried to decorate each Palace differently; if I built them at different heights and if I decorated each one individually, the result would be an effect of disparity, not of a single unit, for the combination of all these different buildings would constitute a kind of small town.

The Palaces of the Nobles and the Royal residence should form, on the contrary, a whole.

Such were the remarks I made to myself as I plunged deeper into my subject.

It is evident that with such a vast construction, there is always the fear that the result will be an effect of uniformity if one tries to subject all the Palaces to the same height to preserve regularity and to decorate them all in the same manner to maintain symmetry.[43]

One must know how to avoid this by finding methods of introducing variety without, however, excluding either regularity or symmetry.

I was very conscious of the fact that to construct a group of buildings of this size, I had to choose a favourable site; it is impossible, for example, to create something imposing on a flat site, for when each part is on the same level there is no development: those in the foreground inevitably hide those behind, thus limiting their effect; whereas when the site is amphitheatrical, there is every possibility for developing the effects and introducing movement; the diverse planes can have infinite variations. Is there a single one of us who has not admired cities with such a propitious site, for they offer the most extensive, the most impressive and at the same time most pleasing sight! It was in the light of such striking examples that I decided that I should look for a place that

To Newton[70]

Sublime mind! Prodigious and profound genius! Divine being! Newton! Deign to accept the homage of my feeble talents! Ah! If I dare to make it public, it is because I am persuaded that I have surpassed myself in the project which I shall discuss.

O Newton! With the range of your intelligence and the sublime nature of your Genius, you have defined the shape of the earth; I have conceived the idea of enveloping you with your discovery. That is as it were to envelop you in your own self. How can I find outside you anything worthy of you? It was these ideas that made me want to make the sepulchre in the shape of the earth. In imitation of the ancients and to pay homage to you I have surrounded it with flowers and cypress trees.

The conception of the interior of this tomb is in the same spirit. By using your divine system, Newton, to create the sepulchral lamp that lights thy tomb, it seems that I have made myself sublime. It is only decoration I felt I should use. I would have felt I was committing sacrilege if I had used any other decoration for this monument.

When I had completed this project, I must confess that I experienced a certain dissatisfaction that made me want to include inside the tomb ideas that I thought it would be impossible to include, because I could scarcely glimpse how it could be possible. We shall see what study and the perseverance of a man who loves his profession can do.

I turned over in my imagination all the magnificence of nature. I groaned at not being able to reproduce it. I wanted to give Newton that immortal resting place, the Heavens.

If you have the drawing in front of you, you will see what could have been considered impossible. You will see a monument in which the onlooker finds himself as if by magic floating in the air, borne in the wake of images in the immensity of space. Since the effect of this extraordinary image can be only imperfectly represented by the drawing which can give only a notion of shape, I will attempt to supplement it with the following description.

The form of the interior of this monument is, as you can see, that of a vast sphere. The centre of gravity is reached by an opening in the base on which the Tomb is placed. The unique advantage of this form is that from whichever side we look at it (as in nature) we see only a continuous surface which has neither beginning nor end and the more we look at it, the larger it appears. This form has never been utilized and it is the only one appropriate to this monument, for its curve ensures that the onlooker cannot approach what he is looking at; he is forced as if by one hundred different circumstances outside his control, to remain in the place assigned to him and which, since it occupies the centre, keeps him at a sufficient distance to contribute to the illusion. He delights in it, without being able to destroy the effect by wanting to come too close in order to satisfy his empty curiosity. He stands alone and his eyes can behold nothing but the immensity of the sky. The tomb is the only material object.

The lighting of this monument, which should resemble that on a clear night, is provided by the planets and the stars that decorate the vault of the sky. The arrangement of the planets corresponds to nature. These planets are in the shape of and resemble funnel-like openings which transpierce the vaulting and once inside assume their form. The daylight outside filters through these apertures into the gloom of the interior and outlines all the objects in the vault with bright, sparkling light. This form of lighting the monument is a perfect reproduction and the effect of the stars could not be more brilliant.

It is easy to imagine the natural effect that would result from the possibility of increasing or decreasing the daylight inside the monument according to the number of stars. It is also easy to imagine how the sombre light that would prevail in this place would favour the illusion.

The effect of this magnificent composition is, as we can see, produced by nature. One could not arrive at the same result with the usual techniques of art. It would be impossible to depict in a painting the azure of a clear night sky with no cloud, its colour scarcely distinguishable for it lacks any nuance, any graduation, the brilliant light of the stars standing out garishly, brilliantly from its darkened tone.

In order to obtain the natural tone and effect which are possible in this monument it was necessary to have recourse to all the magic of art and to paint with nature, i.e. to put nature to work; and I can say that this discovery belongs to me. Someone will object that he has seen more or less similar things, will give examples of places lit by means of apertures. I know all about that, as we all do. But what was the effect in these places? It is not, in fact, the means which I am contesting but the result. And if it is assumed that I am not suggesting anything new, which belongs to me alone, then I would observe that apples fell before Newton and I would ask what was the result of it before this divine intelligence . . .? Doubtless I could also add that the palette of a dauber contains the same colours as those used by a gifted artist and isn't the ink that an idiot writes with the same as the ink used by a man of genius, etc., etc., etc.

Military Architecture

I have already explained what part of Architecture belongs to science and what part to art. In the strict meaning of the word, Military architecture is concerned with fortifications for the purposes of defence. Everything beyond that is part of civil architecture, and that alone should arouse in us the sensations that we should experience at the sight of the Entrance to a City, the gate of a fortified city, an arsenal, a Fort, etc., etc. These monuments each have their own in-

academy so that their projects would offer the most complete museum of all that comes within the field of architecture.

By enumerating the means of making the Academy and its members useful to the State, I have doubtless made it obvious how important it is for the Government to give as much encouragement as possible to this society of Artists. This is why it seems to me that whenever there is any question of building a public monument, there should be a competition which will force comparisons and is the only way to ensure success. And in order to prove that all decisions are unbiased and impartial, it would, I think, be necessary to exhibit the candidates' designs publicly.

The most suitable place for the exhibitions would seem to me to be the premises of the Academy of architecture.[83] The result of these exhibitions would be reasoned censure from some; from others bitter criticism and the venom of anonymous satire; but clashes of opinion reveal the truth. After all these public debates the moment would come when the voice of the academy would be heard. And who could doubt that justice will be done to artists who have given proof of the greatest talent, for the members of the academy will have before them all the public dissertations and moreover, for the sake of the reputation of the profession, will be concerned with satisfying the confidence of the Government and not yield to any outside influence.

I should like to express here the delightful sensations that I experienced each time that I heard the academy reply to the enquiries addressed to it. The facts I am discussing here are to be found in its records which show that on several occasions when members of the academy were competing with their students, the latter were given the vote of the academy when they deserved it. But if this wise conduct did not surprise me, I certainly considered it remarkable that such justice could be meted out without any member of the academy daring to take into consideration anything but the candidates' designs.

Recapitulation

Circumstances govern man's every enterprise. When I was young, I shared the opinions of the general public; I admired the façade of the Peristyle of the Louvre and thought that this design consisted of all that was most beautiful in architecture. I was indignant when I read in the works of him who passes as its architect that he was attempting to degrade the profession which honoured him and that he considered it fantastic art. The fear of devoting my life to the study of a visionary art which would lead me from error to error made me decide to ascertain whether, as Pérault maintained, architecture did not derive from nature; and if, according to his terminology, it was indeed fantastic art.

I felt myself obliged to refute his assertion and I began a detailed examination of what could be meant by fantastic art. When I had completed this, I wanted to go more deeply into the question and began my research into the essence of volumes which made me aware of their properties and then of their harmony and their analogy with our own system.

These discoveries enabled me to prove that architecture derives from volumes and that since all its effects have this same source, it inevitably derives from Nature.

I studied Perault's assertion in which he compares architectural principles with those on which music is based. I uncovered his error and I have proved that there is no analogy between these two art forms and that consequently the principles on which they are based must be totally different.

I have established a method for discerning the basic principles of an art and finally I have proved that in architecture these derive from Regularity.

By observing nature I broadened my conception of my profession and by applying what I had observed and my philosophy, I have suggested techniques that no one had ever grasped before. The merit of this work lies in the fact that I have seen further than my short-sighted predecessors.

In general, those who have written about this subject show no breadth of vision: they confine themselves to putting forward a few examples they have taken from antiquity. They have never proved that man can make no progress in art except through the study of nature; that it is through nature that we can grasp the Poetry of architecture; that this is what constitutes art; and that the only way of arousing a variety of sensations within us is by giving monuments an appropriate character. Writers do not convey any impression of the great images that can be created by assembling all this scattered beauty; they have never made us feel that the greatest task of an architect is to utilize all this; and that by using all the means that nature puts at our disposal, we can achieve the apotheosis of art.

We should be grateful to an Artist who writes about his art; but this is not enough. He develops his talent and proves it in what he builds, for what is expected of an architect is not to write well but to build well.

In my project for a Metropolis, which is the Epic of architecture, I have attempted to develop and combine all that gives Poetry to this art. My new philosophical concepts have enabled me to make use of nature by introducing daylight into the Temple; for now that I could control it, it was capable of brilliant, mysterious, soft and sombre effects: in short, it could arouse in us sensations similar to those of our religious ceremonies and which are necessary to the worship of the Supreme Being.

I planned my funerary monuments to inspire a horror of death and thus to bring man back to morality.

In Newton's Cenotaph I attempted to create the greatest of all effects, that of immensity; for that is what gives us lofty thoughts as we contemplate the Creator and gives us celestial sensations; finally, what I have called the architecture of shadows is my own discovery and one which I bequeath to those who follow me in an artistic career.

I will not bore you by continuing to describe my goals. I would advise those who intend to take up architecture to study attentively what I have to say, to study my designs scrupulously, to ponder on them and on my writings, before coming to any conclusion; then, to do as I have done with regard to the ancients, that is to respect their designs when they are good, but not to follow them slavishly; but to become rather the slave of nature which is an inexhaustible spring where all of us, however many we are, should d continuously.

I had decided when I was writing the main body of work to refer the reader to the following notes, but on fur reflexion I decided that perhaps it would be more agree for him to read them all together and to let him decid himself how he will apply them.

Notes

If men based their ideas on the study of nature, they would be less likely to fall into all sorts of errors. Each one of us has his own definition of what is beautiful and each one of us believes that he is right: but reason is the fruit of study: thus, before we announce our ideas, we should surely form an opinion by questioning nature and confirming our views with the proofs which derive from it? These proofs emanate from all that does most to arouse our sensibility, so that there can no longer be any doubt. Once this basis is established, we shall be able to come to an agreement. Allow me to question nature with regard to that beauty that our hearts recognize as all powerful.

It seems to me that there exists in what constitutes beauty, in the strict sense of the word, qualities that are so striking and so clear that no one can refuse to accept the evidence and not be moved by them.

For example, I believe that every one will admit that an impression of being alive is indubitably one of nature's greatest gifts: it is a well-known saying that there is no dead beauty: I have never heard anyone say, How beautiful of a blind person![84] The greatest of all forms of beauty is thus the quality of life that comes from an animated air, but where does the animation come from? From the eyes. They are the mirror of the soul and consequently of life. It is in the eyes of the one we adore that we find her and happiness too! It is the eyes that reveal the most beautiful of all beauties, I mean that of the soul.

Isn't freshness one of the main qualities constituting beauty? Does it not herald the beautiful dawn of each day? Isn't it nature's finish that brings out in a young girl's complexion the brilliance of the lily and the pink of the rose?

Doesn't firmness, the pleasing companion of freshness, indicate good health; doesn't it arouse the pleasant desire to touch? Doesn't it preserve a beautiful form which bad health would cause to sag and give beauty an air of listlessness?

Is not Regularity a guarantee of beautiful features, for if they are irregular they are not beautiful. Beautiful forms are well defined and their beauty derives from their full development and perfect symmetry.

If, as I presume, these remarks are neither conventional nor arbitrary, I think I would be right in suggesting that they can establish the foundation on which to base our concepts of beauty.[85]

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arrangement; we must assume that what is ordered is p sant for how can we presume to create order out of wha find repulsive? And so, since symmetry is composed of is pleasant, and since order adds even further to pleasure, since the analogy, the accord, the harmony of element must necessarily be assumed to emanate fro impression of order, it follows that a symmetrical com tion must consist of all that does most to flatter our sen

Uniformity, which the vulgar often confuse symmetry, derives from similarity. The image it has to sent offers us only a multitude of elements with the aspect. What makes this impression sterile and of litt terest is its lack of that quality that awakens our soul. I variety.

The immediate impression made on us by the sight architectural monument is the result of its general What we feel constitutes its character; what I call giv building character is the art of using in any design a means appropriate and relevant to the subject; so th onlooker experiences only those feelings that the su should arouse, which are essential to it and to whic susceptible.

The variety of nature is infinite and always differe follows that no creation of the fine arts should ex resemble another; and that every subject should be with in an appropriate manner.

Few monuments have a true character of their ow few architects appear to have concerned themselves giving their architecture character; and yet this is the the Poetry of art, its most sublime aspect, and the one makes it true art.

On page 197 of the second volume of Baron de Riet account of his travels in Germany, the author discuss writers of that country and makes the following vations on art in general.[86]

It is nature that gives us our first concept of the which cannot then be brought to perfection by theor only by paying attention to and searching for what is beautiful and striking in nature. That is what makes o artists! And it is by interpreting, feeling and comparing original works that imitators can acquire their tra Good taste is not acquired through theoretical studies: