

CHAPTER TWELVE

ARCHITECTURE. THE INVERSION OF THE SPACE OF SCULPTURE

Architecture, the art in whose experience space most controls time, is therefore the last art on the spectrum. It also represents an answer to the question raised by previous art, sculpture, as to secret of the inside of a space that is occupied by matter. From the point of view of inside and outside, sculpture and architecture stand as inverses. We experience this transition tangibly as we step over the threshold of a building¹. From the outside, the building appears, except for scale, as would a sculpture. As we go through the portal we sense an inside unfolding about us. As it unfolds we realize that the inside becomes essentially just another outside. The secret of the inside of space becomes simply more space, for it is now empty of any content that would occupy it and make it inaccessible. The secret of the inside of space turns out, according to architecture, to be simply more space. Space held no secret after all. The possibility of a mysterious nature that was different than space, but living at the heart of space, vanishes at the entrance way. The inside of space now lies outside us, plain to see. If anything at all is now in the center, and remains as a mystery, it is ourselves, whose inner essence is beyond space, and in time only.

The surface of the sculpture, beyond which we could not penetrate inwards, is now the outer boundary of the architectural space beyond which, unless provision is made, we cannot penetrate outwards. In fact, if we were born within a building, and there were no doors or windows to inform us of an outside, what lay in space beyond the walls would be the mystery just as was the inside of sculpture. Sculpture would represent the hypothetical experience of being able to see the work of architecture from the outside. Eventually, without some promise in time of a passage to the outside, the inside simply devolves into becoming the equivalent of the outside.

Sculpture is embraceable, architecture is embracing. The surface of the inner side of the wall of the building contains and defines its. The space between us and the work has become enveloped and bounded. It has become finite in extent, it is not infinitely extended outwards as is the space containing the work of sculpture². It is the infinite space that is now withheld from us.

Sculpture has an effect on the everyday space immediately surrounding it, but that effect is limited. The ultimate way for a work to affect space is for it to *become* itself that space, which architecture does. Architecture does not so much use the everyday space given it, as it appropriates it, redefining it wholly into an artistic space. The portion of space that is enclosed in a building is exactly the same portion of space that was there before the building was erected. In this sense, enclosing a space does not change the space that is enclosed. It is rather the shape of the enclosed space that becomes the relevant aesthetic determinant.

We could move around the sculpture. We were mobile in the space surrounding it. Given time we could occupy any position surrounding it. With architecture the work, all at once, despite time, surrounds us, without it having to move. If the work were sentient then its Argus eyes would see us from all sides at once³. The work has already walked around us, but during its construction phase, and has left a permanent trail of matter behind it.

The price that architecture pays for usurping the everyday space is that during its creation phase it must contend with the everyday reality as a whole. Every aesthetic wish is an engineering problem to be solved. The architect worries about the work falling down so that the experiencer can enjoy the security of its staying up. If there is rain in the everyday reality, should there be a roof? If there is wind, should there be walls? Architecture offers refuge from inhospitable factors in the environment by becoming itself the environment. If hostile forces roam the area⁴, should there be a single hidden entrance. Does this address the need to escape? The original model for protection from the everyday reality is the womb, which fully enclosed us. It had only one way out⁵, unique in time as well as space. In some sense there is an echo of that birth every time we leave our house.

The work of architecture may choose to admit the outside to a large degree, as a Stonehenge or in a glass building, or it may admit the outside more selectively, for instance just light but not air, or just air but not light. It may choose to exclude the outside as entirely as possible, as in a tomb or in the sanctum sanctorum. Once we are inside the building, the inside can be a microcosm of the outside, providing everything that the latter can. The building can also attempt to control what we do within it: eating, sleeping, shopping, using a bathroom, having a meeting, etc..

> MORE ABOUT SPACE IN ARCHITECTURE

In music, space is immanent and not yet extant. In poetry space arises parenthetically as an epiphenomenon to words. In animation space is now present but as the backdrop for (sometimes radical) change of form in time. In dance space is used but it also recreated a second time by movement. In theatre space is still primitive, giving resonance and dimension to human action. In literature and film space is settled, taken for granted, it exists passively providing a lasting housing for events and images, but at the same time separating itself from us, becoming privileged and protected in time in literature but also in space in film. This is true too of painting but time has now been frozen out of its space, and its objects are immune from changes in our position. In sculpture, with time gone, the work enters the everyday space, offering its sheer materiality against our time. It yields to our inquiry if we confine our inquiry to changes in our position and not inquire as to its inside. In architecture space is turned inside out⁶. The object is no longer immune to our attempts to probe within it. It hollows itself out and seals the wound of our entry by wrapping itself around us.

In the temporal arts, to be led inward by the artistic experience meant being led inwards into our time and conscious states. Painting and sculpture could lead us outwards, into themselves, as if our consciousness relocated in space. In architecture, being led inwards means being led inwards in space.

Architecture is, for extended parts of the day, our de facto environment. Would it not then itself be simply an instance of the everyday reality and not an artistic reality? Yes, were it not for the fact that its true role is as a usurper of the everyday reality rather than as a continuation of it. Just as space occupied is space no longer available, no longer part of space as a whole, so space surrounded, even though we are within it, is no longer a part of space as a whole outside the enclosure.

It has been appropriated from the latter, its nature changed from outside to inside (a significant difference as we shall see shortly). Having taken over the role of the everyday environment,

architecture need not imitate it. It need only be taken *as if* the everyday environment. It can alter features from the regular environment as it sees fit.

Where other arts on the right side of the spectrum explore the spatial relations between objects, or between one part of an object and another, architecture, by being itself the space in which we are, explores the relationship between ourselves (in place of an object) and space itself. It is the art that brings us most truly into relation with space.

> INSIDE AND OUTSIDE

Though we take for granted in our daily experience the difference between inside and outside, these experiences are profoundly different. Highlighting them will help us appreciate the difference between our experiences of architecture and sculpture. We will make use of the example of a small cubical house consisting of one room that has no windows. If we had never been indoors in our entire life, and we saw this room from the outside, could we imagine what that room would look like to us if we were inside it and its space spread out around us? Similarly, if we had perpetually been in that room, and never had been outside, could we imagine what our room would look like from the outside, how it occupied the space around it? Unless we were geometers, without prior experience it is hard to intuitively convert one experience into the other. We can easily convert one experience to the other by the act of entering or leaving, but it is hard to find a moment when both experiences appear jointly.

From the point of view of sight, going outside makes the inside disappear, going inside makes the outside disappear. On the inside of the room we cannot see how space surrounds it from the outside. From the outside we cannot see that the room would extend outwards from us and surrounds us if we were within. If we stand by a vertex of the house on the outside we can only see two walls, which two block our seeing the other two. Standing by the same vertex inside, we can see all four walls: no side hides any other. On the inside a vertex appears concave seeming to draw away from us. On the outside a vertex reaches out towards us and appears convex. On the inside, if we go into a corner things draw in around us, eventually closing in on us to the point where we no longer can fit. On the outside, if we walk towards a corner, the walls flare out further and further to the sides and our body is not blocked from making contact with the corner. As we approach the corner the walls seem to get longer and longer without bound. From the inside a wall always appears finite in length. If we face a corner and walk towards it, what we see of the room grows smaller and smaller, the corner itself is a dead end. From the outside a corner does not present a dead end, it merely splits our view rightwards and leftwards. On the inside, we can only move a finite distance away from a given point. If we move away from one wall we are drawing closer to another. On the outside, we can get as far as we wish from any point, and in doing so are not compelled to draw nearer another point.

From the point of view of touch, from outside an object our hands can act to surround it, while if we are inside the object our hands cannot surround it but it surrounds them. That which is convex bulges towards us, it approaches us, what is concave retires from us, recedes away. When we switch from inside to outside, what is convex becomes concave, what is concave becomes convex. If we were not used to all these differences, we would appreciate how significant they are.

> WHAT IS A WORK OF ARCHITECTURE WHEN SEEN FROM THE OUTSIDE?

In many ways a building seen from the outside is experienced as we do a sculpture. It influences the surrounding space like as does a sculpture but on a wider scale because of its size. Even on the inside, many surfaces will project outwards towards us and curve away from us creating local sculpture-like details. Generally, any portion of a work of architecture that reaches towards us on the inside, if treated in isolation, can be thought of as a sculpture⁷. Usually there is a distinction of size between works of the two arts. We must be able to fit into a building but not necessarily into a sculpture, though often, as in the case of the Statue of Liberty, we can. The size of the latter is accounted for by its being meant to be seen from a great distance. It is hollow inside but our experience of it as we climb to the top is strangely un-architectural. Houses in comparison will seem tiny if viewed from the distance intended for the Statue of Liberty. They become doll houses. With imaginary giant's steps we could walk around them with but several paces. Such steps must remain in our imagination for if we take several actual steps we hardly change their appearance. This was true of painting. When the spatial arts entered our space with sculpture, they became subject to the shared laws of perspective. Now with architecture, because of its scale, if seen from a distance, it is almost as if sculpture has retreated back into its own space. Space is in the ascendancy over our steps in time.

> THE PORTAL

As the spatial work of art entered the everyday space the portal in the form of the frame disappeared, only to reappear in architecture. To maintain the distinction between inside and outside there should be only limited means of communication between the two. If there is a house with no openings, then if we start on its outside we cannot get inside, while if we start on the inside we cannot get outside. The outer wall of the building needs to be a semi-permeable⁸, so that if we choose the right location on its skin, and move in the right direction, we will find ourselves suddenly inside. Though the door is passive in space, it allows us to be an active agent to apply ourselves against its fulcrum to cause the inside to become outside, or the reverse. There is no discernable physical difference between walking through the door one way or the other, but the response in our experience of space is vastly different. It is only our action of moving through the door that shows that one is derivable, in time, from the other. Without the leverage of the door we would in effect have to tear down the building and put it back together so that the inside wall faces outwards. Every door is a mystery in that it may lead outside or lead to another part of the inside.

> WHERE THE BOUNDARY BETWEEN INSIDE AND OUTSIDE BREAKS DOWN

> A THOROUGHLY IMMENSE BUILDING

Philosophically, architecture excludes the outside and defines the inside. In practice though, through doors, windows, missing, transparent or translucent materials, inside and outside selectively mingle. In a large building consisting of a single undifferentiated space, we would not know in which direction to proceed to find the door, unless its space is further defined and articulated. A building could be built that was so vast that we would not know if we were inside or outside. Its

walls and ceilings could recede indefinitely far away, and painted like the ocean and the sky. Perhaps at nighttime signs of the true outside would leak through the unseen walls like the stars in the sky, informing us that there is more to space than what we had thought.

> NESTED INSIDES

Rooms can contain rooms which in turn can contain rooms. Reality exists in concentric layers both around us and within us⁹. Each new layer reveals yet a new horizon. Space nests infinitely, we never reach a final nothingness or a final infinity, not while remaining within the modality of space. Entering a room echoes the original act of entering the building. A work of architecture can contain not only rooms but another work of architecture in its entirety. Common examples are a church within a big city skyscraper, the perimeter walls of a fort or fortress surrounding an inner space within which are other buildings, or a large building with a courtyard at its center, the latter containing another small but complete house,.

> MEDIATING BETWEEN OUTSIDE AND OUTSIDE: A TRIUMPHAL ARCH

A triumphal arch acts as if it would lead us from one reality to another. As we near it we feel that our reality is about to be transformed, but as we emerge from the other side we find that we are still in the same reality as before. It is a spiritual rite of passage connecting everyday spaces instead of phases of everyday life. Whichever way we walk through it the other side seems to be held within the arch. We emerge into our former space but a space purified by the passage. The arch acts like the frame of a painting, revealing a new reality within it, but this is a frame that we can pass through, and the effect of the new reality diminishes as the frame recedes behind us. There are other structures that similarly mediate outside from outside: the Berlin Wall, the Great Wall of China, the bridge and the tunnel. The last is interesting because though it mediates two outsides it has a definite inside, almost like an elongated portal that becomes itself the major feature of spatial interest.

> CAUSING THE INSIDE AND THE OUTSIDE TO MERGE

If we were to remain in a building as it is being constructed, we would witness a structural essay through time on the transformation of outside to inside. The opposite would occur if we remained within a building as it was torn down or was made of a material that within a human time-frame eroded or melted.

If there are many windows in a building and they are open, the inside begins to take on qualities of the outside, including light, odor and climate. Under a large tent, under a canopy, in a garden surrounded by hedges or trees, the outside takes on qualities of the inside.

A window is like a door but one which advertises what is on the other side, though without usually providing direct access to it. Through the window, it is as if the space of the work protruded further outward. What was to us outside the building before we entered is now felt to be like an extension of the inside: something analogous to how a sculpture affects the space immediately around it but this time experienced from within. The window also has overtones of a mirror because it shows us something that is not a direct continuation of the space surrounding it inside the building. In

another way it is like looking at a painting, for it seems to hold a different reality within its frame (one which differs as outside differs from inside). As did the painting, the window limits (but not as much) what we see of the reality it contains within its frame.

Four buildings can be placed [diagram] so that one wall of each forms a side of a single square that itself is outdoors in that it can be open to the sky, but also inside in that all that is missing is a roof. A building could be constructed that leads us inwards in a series of doors until, when we find the central room, we find it is open to the sky and contains a stairway leading out of the building.

A Klein bottle is a object whose inside is continuous with its outside [reproduction]. It is meaningless to say that its single surface is inside versus outside.

If we are living inside a giant sock, and a power that we cannot comprehend turns the sock inside out, we find ourselves suddenly on the outside. We haven't changed our position in any way, yet we have clearly gone from inside to outside.

> VOYAGING UP OR DOWN THE ST. LAWRENCE RIVER

Being inside or outside is often as much a state of mind as anything else. This state in turn is often dependent on the order of our experience. The St. Lawrence River at Montreal is a respectably wide river but it is easy to see from one shore to the other. As it flows towards the Atlantic it gradually gets wider until just before it enters the Gulf of St. Lawrence it is fifty miles wide. At that point the air must be especially clear to see across it. The widening continues a gradual in the Gulf until the latter blends imperceptibly into the ocean. If we board a cruise to Europe in Montreal, we begin by having a clear impression of being surrounded by land. The shores seem long in comparison to the width of the river. As we sail eastwards, the shores begin to recede from each other, but for a long time we still feel that we are not yet at sea but in a river that is part of a continent. Eventually the river becomes so wide that we begin to feel that we are no longer bounded by land. Our thoughts have already drawn us into the empty ocean, even though on a map our position might reveal that we are were still a good distance from the ocean.

If, however, we start in the ocean and proceed up the river, the reverse sensations occur. Even after, according to a map, we have entered the Gulf of St. Lawrence, we may feel that we are unbounded by land, for none is visible. When land becomes vaguely visible, it may be on just one side. We could be in the ocean approaching a mainland. Eventually we see land on both sides. We are now "inside" the river. The point at which, on the outbound voyage, we give up the sense of being within, and start feeling without, may be much further towards the ocean than the point at which, on the inbound voyage, we give up the sense of being without, and start feeling within. The location of the points of change is strongly influenced by the order of our experience, more so than by its geographical coordinates. We normally cling to the state we are presently experiencing. It posses a certain inertia.

> WALKING ON A STREET IN A NEW TOWN

We have arrived by train in an unfamiliar city. The train station is not in the center of the city but at one end. We are ignorant of the layout its streets. At the center of the city there is a tall monument

visible from the station. We use the monument to guide us on foot towards the center. We pick a main street that seems to heading directly towards the monument. Half way to the monument the street mounts a small incline, and just past the top the street ends abruptly. Up until now, the street seemed unbounded at its forward end, now it appears closed off in the direction in which we are moving. In one sense, a timeless sense, uninfluenced by the order of experience, the street was always bounded, it did not previously go all the way to the center of the town but became blocked at the incline just as we approached that point. However, as regards our state of mind, the street had up until the point when we first saw its end, remained unbounded.

> SPIRALS

Consider a series of square rooms of equal size placed end to end along a single straight line. Now consider the same rooms bent into a loose spiral with space left between the concentric arms [diagram]. There is a door in each side of each room. If we leave one room and want to get closer to the spiral's center we can go from one room to an adjacent room following the spiral inwards, and without ever leaving the building. A faster route would be to open the side door facing inwards and walk through the empty space between arms and into the adjacent arm closer to the center. When in this space, we are outside the building yet completely surrounded by the building. It only lacks a roof. If we erected a common roof to the entire building that is twice as high as the height of any of the rooms, then when between layers we would see a roof over us, but we would also see a recess above the ceilings of the adjacent rooms. This would cause an even more ambivalent reaction as to whether we were then inside or outside.

Consider a building built in the shape of a Chambered Nautilus [diagram] but without any separation between chambers: just two continuous outer walls that gradually draw closer together as we move inwards towards the center. From a geometric point of view the structure is entirely outside though we would only feel outside for a short while after entering the building, when we can still turn around and see open air behind us. Once the wall of the spiral has curved back around us, for the rest of the trip inwards we feel inside. No matter which we looked we would see wall. for the most part have a feeling of being inside rather than outside.

> A MAZE

A maze, whether two dimensional or three dimensional, is technically all outside and no inside. If we were in the midst of it, and having difficulty finding our way out, we would nevertheless feel trapped "inside" it.

> THE APPARENT TWO-DIMENSIONAL SHAPE OF THE SPACE AROUND US

On an empty plane or on the sea the two-dimensional shape that we see around us is an unbroken circle. In a more limited space our view in any direction is limited by the presence of the first opaque object in that direction. If we look to the left or right of that object we see another object although its distance from us may be different. From a strictly two-dimensional perspective, that ignores distance from the eye, it appears as if the sides of the former object directly abut the sides of the others. The diagram below suggests that as a result of these apparent adjacencies in two dimensions, a single composite object is created by all the near faces of the objects. It is as if the

side edges of one object extend directly backwards or forwards on a radius from our eye to connect with the next object to its right or left. The eye has cut out one contiguous, jagged, shape which it takes to be the shape of the space around us. When we move in we mold this composite shape as a whole using the tools of perspective. The diagram looks like the silhouette of a city skyline except that it does not appear upright in front of us but rather extends horizontally from us.

[diagram of 'skyline' cut out of a room, featuring a wall, book case, chair, chair, pole, lamp, table, that arcs around viewer to horizon and which indicates position of viewer, nearer and farther from viewer]

> SIZE

Architecture is scaled to human beings. Painting seems to dissipate its effect when it gets too large unless it is meant to be seen only at a distance. Sculpture succeeds better at being large, perhaps more so if it is abstract. Architecture contains the ultimate ability to extend far in space because it is not surrounded by space but itself surrounds space. The work of architecture needs to be large enough so that if it has an inside in which we can move freely. A room too small to enter, or with a ceiling too low to allow us to remain upright, serves little purpose. A doll's house is interesting in this regard. We allow that the dolls are living inside the house, that for them it is a work of architecture, though we cannot fit inside ourselves. We could put a tiny camera inside and move it about. Though we would have visual input as to what it is like to be in that space, we need all the senses to feel fully "there": the feeling in our muscles as we move about, the pull of gravity pressing our feet to the floor, the smells, the sounds, etc.. A room that is large up to a certain degree impresses. Beyond that it serves no purpose, or rather it is too large for most purposes. Would we sleep in room twenty or fifty times larger than the average bedroom? Would we wish to eat at a table in the center of a room similarly sized?

> REPETITION. NEGATING THE REMAINING EFFECTIVENESS OF TIME

Architecture ultimately can outwit any need for change of position on our part through time by extending identical content throughout itself. A temple with ongoing rows of columns or the great cathedral with repeating windows in recurring apertures in the wall create a timeless environment in which motion is to no avail. We are in a resonating chamber sensing the augmentation of the effect of the element repeated. It is like walking around a perfectly spherical, uniformly lit, object. We can move; but why bother? It is as if we had not moved. Perhaps our motion, through time, was itself an illusion. Distance only acts to separate what is identical. Space is ready to absorb any effects of time and not reflect them back. As fast as space expands away from us, it fills itself with what was in its initial location. It is as if we held a mirror in front of our face as we walked in space. What we see remains constant and is independent of where we are.

> GRAVITY

As we go into the future more and more architecture will be built in gravity free zones. Its shape will change dramatically. To prevent collapse in a gravitational field one part must support another. Architecture and dance seem to be the two arts whose aesthetic form is most influenced by gravity.

> ARCHITECTURE VERSUS SCULPTURE

A sculpture occupies space, a work of architecture is occupied by space. We can see a sculpture because the space outside it is empty. We can see a work of architecture because the space inside it is empty. With both, our movement has the effect of changing the ratio of the apparent sizes of parts of the work, in the case of sculpture of material parts, in the case of architecture it is also the size of empty spaces. The shape of a sculpture is the boundary between inside and outside, seen from the outside. The shape of the space of a work of architecture is the boundary between inside and outside seen from the inside. Sculpture occupies a portion of our visual field, it disappears if we turn and face a different direction. We occupy a portion of architecture's space, it appears in all directions and we cannot turn away from it. We must find the portal to make it disappear. We can move at will around the sculpture but cannot get inside. We can move at will within the work of architecture but cannot get outside it unless a means is provided. We can reach around the sculpture, we cannot reach around the work of architecture; it embraces us. At the center of the work of architecture is our self. At the center of the sculpture is an unknown.

Sculpture is ultimately convex although within that context there can be imbedded concavities as well as convexities. Architecture is ultimately concave although within that context can be imbedded convexities and concavities including parts that are fundamentally sculptural. We ourselves are one such body. The space that encloses both us and the work of sculpture, can itself be enclosed by a work of architecture. A sculpture is often constructed in one place and then moved to another for display. Architecture is usually built in the place it will remain. While on the one hand we can think of architecture (unlike sculpture) as yielding to our attempt to probe inside it, on the other we can say it thwarts that attempt by metaphorically turning itself inside out and presenting us with simply open space.

> AMBIVALENT WORKS

A suspension bridge's inside is its outside. It is as if over milleniums erosion has removed all but the strongest supporting members and the one flat ribbon that they support. It is similar with the Eifel Tower. They are pristine ruins. The *Statue* of Liberty is large enough that we enter its inside. When we are in it though the inside space is quite dismal compared with its stunning effect from the outside. The same is true of the St. Louis Arch, whose very impact as a soaring parabola requires that its interior space be cramped.

Here is another ambivalent situation. An installation is mounted consisting of a large number of wide, hanging ribbons of cloth. When looked at from the outside it has a single form defined by the ribbons on its perimeter. However, it is possible to walk through this work, parting the ribbons we proceed. If the ribbons are close to each other, then while on the inside there will be little sense of an interior space opening around us. As soon as we pass its perimeter portal we feel absorbed by the substance of the work.

If there are many large and related sculptures, near to each other, among which we can walk, the emphasis shifts from the sharing of a common space with sculpture, to our being in an environment

of sculptures, with much of the aesthetic of the intervening space defined by the works, almost like being within a building.

Pottery probably should be thought of as sculpture, but it has an interesting connection with architecture. The potter's wheel allows the sculptor to shape all the sides of the work at once. The desired or useful part, its goal, is the inside. We take pleasure in the outside form as well as the inside as seen from the outside. Perhaps with a tiny camera we could put our eyes inside the bowl and see its space expand around us. We can do this without such devices if we are in an amphitheater.

> OTHER

In painting the relation between two points is fixed. In sculpture this relation can vary by our choice of position, points can even switch sides. Often we cannot see two points simultaneously because the sculpture itself interposes itself in between them. With architecture, if two points are not visible at the same time when looking in the same direction, it can be because we have interposed our self between them.

If we come to a wall within a building, not facing the outside, we have no way of telling whether what lies behind it is more of the interior space of the work, or impenetrable matter such as what lies behind the wall of a cave. Sometimes a work's space will be arranged so that from certain positions we can see both sides of the same wall.

The walls, floor and ceiling of a room can be all painted the same color. Great care can be taken to light the room so that the lines formed where planes meet are subdued. The net result is to neutralize or partially nullify the shape of the room. It becomes a cocoon having no particular shape, somewhat like the neutrality of a sphere, in which there is only one plane and therefore no angles of intersection.

> THE SENSES AND ARCHITECTURE:

> WE ARE THE WORK OF SCULPTURE BEING MOLDED BY THE SCULPTOR

The work of architecture shields its inner reality from the everyday reality by erecting a protective boundary around itself. We too have a protective boundary about us: our skin, which protects our inner environment from the outer. Within the inner skin of architecture we place ourselves. Our senses reach outwards from our skin and the work's skin reflects back their inquiries. It is as if we were extending our arms and probing space with our hands, and at a certain point felt a limiting or bounding pressure pushing back upon us, defining the scope of our spatial freedom. It is as if the work were molding our sense of freedom and potential motion in its space. In the extreme, a person can feel suffocated in a small space. In a great cathedral as the space draws away from us, we are drawn outwards and feel expanded beyond our usual limits. Volumes fill with our enlarging awareness. We sense the forces that scooped out these vast interior spaces. They act once again through the effort of our mind, enhanced by virtual motor sensations. Though the work may have taken years to create, our ideated sensations take place outside cause and effect: with a wave of a hand, a gesture of the mind, we create it instantly with the power of gods.

Each space produces a different visceral effect upon us. Space welcomes the expanding inquiry of our consciousness and reaches back to embrace us. In large works of architecture the tendrils of our perceptions are led deep and deeper into space. Some part of us expands into it. The boundary of its space, which we have called its skin, is for us a second, even more outer skin. It can make us feel enlarged just as we can feel enlarged by the clothing we are wearing. The empty, intervening space between the two skins does not block us from having ideated sensations of touch that make us feel as if we are touching its surfaces, or that it is reaching back towards us and feeling us. Like waves through a liquid, implied touch and pressure are transmitted to and from the work and us. The net effect is to sense an imaginary change to our own form. In that our current inner state is a reflection of actual or virtual kinesthetic sensations, any change, real or imagined, in the shape of our body, the stresses and strains it is subject to, its density and proportions, alters our mental state. Our interior landscape, or mind-space, is refashioned by the work of architecture.

> ARCHITECTURE IS THE FULL SENSORY ENVIRONMENT

We have discussed how architecture interacts with us through sight and touch. Architecture, however, is in effect our entire environment, and therefore speaks to us through all our senses. The work extends all around us including under our feet, and thus pressure and gravity have a big role to play. When we move in it we feel the exertion of our muscles. In a great church, music and incense combine with the flickering light of candles or the subdued light of stained glass, to create a total experience of the work that is lost if we consider the component from each sense separately. Hearing, smell, touch, heat, cold, humidity, our sense of balance, all are part of our experience of the work. In fact our experience of a work of architecture is just that, *our* experience *while* within the work. Architecture is the first art to allow us the full experience of space from within space, and we receive the benefit of all that is held in that space, including all the stimuli reaching our senses from any content within that space. We breathe in it medium, we are a biological organism existing in its fluid milieu. It is no different than if we are at the seashore and feel the wetness, the breeze, the aroma of the water, the spray in our face, hear the roar of the surf and the seabirds' sounds, and watch the ocean's changing surface.

As a result of its sensory completeness, a work of architecture has as much to do with who we are at that moment as what the work is at that moment. The importance of the senses acting in ensemble is highlighted when their balance is distorted as when we look out through a closed window. Glass, while transparent to sight, is variously translucent to opaque to the other senses. The sounds that we hear in a building come mostly from inside it. Only some come from outside. We see cars passing by without necessarily hearing them. The sense of the reality of the outside is missing because the balance of the senses at the root of the creation of that reality is changed. Though central air conditioning, temperature and olfactory stimuli that would have been unique to different parts of a building are homogenized, thus nullifying in part the full articulation of the work's space. Opening windows similarly homogenizes inside and outside.

Our feet cannot recognize form as well as our hands. What they feel is more primitive. They offer raw contact, support, and the feelings that ensue from this: security, rest, poise, balance, or their absence. The combination of touch and gravity leads to a more complete sense of contact than is available when we hold something with our hands. Sounds from within a building are

influenced by the shape and materials of the building. The concert hall is a work of architecture, whose space is designed primarily with a view towards how sounds will be heard in it, and secondarily for how we will see the musicians (see also, below: architecture "houses" the other arts). When we walk into a new room in a building we are sometimes suddenly aware of a change in ambient sound. If we are in the midst of talking, suddenly our voice changes in quality. There is a different feel to the room that is due to the character of a subliminal background of sounds. It impacts our state of mind. We are hearing the "sound of space".

Often there is a lack of aesthetic intent to the full panoply of sensory stimuli in an architectural space. The architect may not take into account the odor of foods, the feel of the air blowing through air ducts, or how the sound from one part of the building reaches another. Sometimes much of the sensory content of the space *can* be brought under intentional control, so that the creator can work to "harmonize" the senses.

> TIME, IN ARCHITECTURE

As we proceed across the spatial portion of the spectrum, the work more and more controls how we order our time to experience its space. In painting the correlation between spatial layout and order in time of experience is at its weakest. We are free to see any part of the work at any time. Sculpture requires us to walk around it to see it all, we can never see it all at once. As a guest in the space of architecture we must follow its spatial layout to see it in its entirety. With sculpture we could close our eyes or divert our attention, walk to a different position relative to the work's space. With architecture the very act of walking itself is a qualitative experience of the floor of the building and is a part of the sensual nexus of the work's embrace. We cannot walk around the work, which is confined to a circular orbit, we must walk around within it, which is to submit to its particular form in space.

In a work of architecture, everything going on around us is part of its space. Its space *contains* our time as it contains us. In painting, we and the work remained on different sides of the portal. If the painting's content evolved through time we were not able to experience it in our time. In architecture, since we and the work are now both on the same side of the portal, theoretically we both can evolve together through time. This gain however has come late on the spectrum. The work's spatial properties are fixed and frozen in time. But though the space of the work has become frozen (which was true too of sculpture¹⁰), we are now alive within it. Our time comes alive within its space. Time has not been cast out of the spectrum entirely.

There are other qualities about the work, besides spatial, that change with time. Sensory stimuli change. For instance, lighting and therefore color too changes with time of day, new odors may appear near mealtimes, and sounds change from when the building is sparsely occupied to heavily occupied. The building, taken in this broader sense, is a living organism that evolves through time.

> SPACE CAN IMPLY TIME

If from a fixed vantage point in a great church we look at a series of identical windows along the length of the major axis of a great church, each window will have a different size as a function of our distance from it. The same differences in size would appear if we could create a mechanism

whereby a single window could be moved along the length of the same axis. We can then think of the appearance of each of the separate windows as representing a discrete moment within a temporal process. This establishes a certain rhythmic effect due to space implying time. A similar effect occurs for the same reason in the foreshortening of each window which mimics the motion of an object in rotation as seen from a constant vantage point (although the rate of rotation seems to slow the further towards the end points).

> OTHER

The kinetic energy of time has been imprisoned in the potential energy of architecture. Heavy stone blocks, lifted into place through time despite gravity now hover under the miraculous restraint of form. This potential energy can erupt again in time if the work fails.

Architecture defines the extent of its space by the same act by which it creates it, by surrounding it with a boundary: its space is what is left within. In this sense, the extent of its space preexists our experience of it. This space is fixed relative to itself, but it acts plastically in response to our motion through it. As we change position it fluidly opens and closes previously unseen areas and pockets of spaces.

The rhythm of durations of our experience of the parts of a building cannot be controlled by the building unless we loose our freedom of choice as to where and when we can go, if for instance we are on mechanized conveyance that is then technically part of the work itself.

When driving through a long car tunnel, once we have lost sight of the entry, and until we gain sight of the exit ahead, and if there are no changes in the direction or inclination of the road, our only awareness of where we are in space is due to our sense of elapsed time. A similar effect would happen if we are walking around the wall of a circular room whose walls are not punctuated by any defining elements. We can only trust that time is having an effect on space.

A sense of odd but organic-like growth can be seen in a time lapse film of a building's construction. The effect diminishes as the work nears completion, for in whatever position we are in the building gradually hides itself from us as it completes its articulation of parts in space.

> NARRATION

"Program music" attempts and basically fails to tell a story in sounds. A poem can secondarily relate a story. So can animation and dance. Theatre enacts a story directly, it does not have to relate it. Narration rises to importance in literature, where it becomes a key determinant of the temporal characteristics of the art. Its influence then wanes. It is still important in representational painting and sculpture but is less present in abstract art and architecture. It is the paintings and sculptures in churches, or on a work like the great stupa of Borabadur, more than the architecture, that tell a story.

> ARCHITECTURE AND THE OTHER ARTS (EXCEPT SCULPTURE)

The painter, photographer, and sculptor may or may not have a studio of helpers and assistants, but they can function alone. The architect is the least likely, of the spatial artists, to create the work by herself. Often the creative act by the architect is limited to all the steps prior to the actual construction of the work (the concept, the design, the blueprint, etc.). The actual manual work of construction is handed over to a group of builders (performers).

In the temporal arts it is not required that we move through space in order for the experience of the entire work to happen to us. The work comes to us. This trait remains into the beginning of the spatial side of the spectrum, with painting. It begins to change with sculpture and has definitely changed with architecture. It is now we who must move through its space, using our time and now its time, if we are to experience the entire work, an entirety now defined in spatial terms rather than temporal. Size did not imply duration, or duration size, up until architecture, where size now has a partial effect on how long we need to experience the work.

> ARCHITECTURE "HOUSES" THE OTHER ARTS

Architecture encloses space and thereby encloses us when we are experience that space. It also encloses our experience of all works of other arts that do not rely just on our imagination unless displayed outdoors. Even when outdoors, care is usually taken to create an quasi-architectural environment in which to present them¹¹. The most temporal of arts, music, the one art with no space in it, is perhaps the art most influenced by and thereby dependent on architecture, the most spatial of the arts. This connection is usually treated under the heading of "acoustics". In addition to the quality and clarity of the sound, architecture determines sight lines for the audience, for which reason dance and theatre are also ordinarily dependent on architecture. Architecture determines the quality of a surface danced on, it can provide the convenience of wings and dressing rooms. It is architecture that shields the sensory environment from the everyday reality and creates the comfort and safety needed to separate an artistic reality from the everyday reality, ensuring conditions promoting concentration and ease of observation. It acts as a focal point to attract observers together. The setting in which a painting or sculpture is seen, including the lighting, the positioning, the arrangement relative to other works, all of which influence our experience of a work, is under the rubric of architecture. Even with poetry and literature, indirectly, we are somewhat influenced in our ability to focus and concentrate by what environment we are in while reading them. Internally in literature, the settings that are described or which we simply conjure up in our imagination in response to the words are architectural creations of our own.

> DANCE

In the sense that dance creates space, space extends to wherever the dancer moves. In architecture, we can move only so far as its space already extends. The way the dancers move in a space can define the properties of the space being created. The way we move in a work of architecture is defined by the properties of the space already created. We are passive dancers, experiencing rather than defining the properties of the space.

If we, as an observer, are amidst dancers or actors, the work extends spatially all around us, but because the work is temporal, the problem with our position is that it becomes unavailable to the

performers and therefore distorts the performance. Architecture has already decided to avoid the space in which we can take up a vantage point within it.

In the chapter on sculpture we spoke about the "dance" that occurs between the viewer and the object. In architecture, it is the work, surrounding us, that views our "dance" as we move through its space. Sculpture dances with us, but in architecture we dance alone.

> LANDSCAPING

If we extend the purpose of changing the environment in which we are to broader aesthetic reasons, not specifically artistic, then we can mention landscaping and gardening. There is often the same attempt as in architecture to create a quasi-isolated and complete environment, distinct from, and substituting for, the everyday environment. As with architecture, one starts with the space that is there in the everyday reality and making it over. Contours are changed, reliefs are deepened, highlights are added, elements already there are emphasized or de-emphasized, areas are subdivided, changes are made in elevation. Pathways are provided the experienter, usually in ways more restrictive than in architecture.

> COMPARING THE TWO ENDS OF THE SPECTRUM

If we are driving in the foothills of a mountain range, exploring various highways and byways in the region, having no particular destination, we can soon lose our sense of where we are. The roads continuously twist. We lose the ability to know how the place in which we are at currently relates in a common space to one we were at some time earlier. We may have no idea in what direction a place at which we were a half hour ago lies from where we are now or far it is away along a straight line. We would have to raise ourselves off the surface, into the third dimension, and look down from above understand this relationship. Without this spatial understanding, the nature of the connection we experience is based more on time: the duration that has elapsed and qualities of the content in space during the intervening time.

The same sort of experience can happen in a large enough work of architecture, especially one that has been divided into numerous rooms, with numerous hallways, etc.. We may wander down seemingly endless corridors in a giant hotel, or through endless galleries in a giant museum, and lose a sense of *where we are* (it happened to me as a child in the Metropolitan Museum of Art when I could not find my father, and as a teenager my first time at the Louvre). Seeing the building first from the outside *might* gain us some advantage once we are inside. It at least sets up a set of expectations as to how the different parts of the inside might relate to one another. However, we still have to overcome the transformation of an outward appearance to an inward appearance. Mostly we would have to translate our experience of (in) time somehow to space.

Thus when a work of architecture reaches a vast extent in space, our experience of it turns back towards a dependency on time. At the point on the spectrum where art has become the most spatial, the work takes on the ability to become so vast *and* elaborate that can only navigate its space using our sense of time. As with music we say "the work must have a structure that could somehow exist all at once in time", but we cannot perceive it at any one moment in time (from any one vantage point in space).

When we experience a work of architecture, it is we who are literally at the spatial heart of the work. After architecture, there remains only one further inside into which we cannot penetrate from the outside: our own within, our own inner nature¹². Sometimes the architect will reach deeper and deeper inside, by hiding part within part, room within room, until some sort of an inner sanctum is reached. Perhaps in that final room, light will be gone, and consciousness too will be extinguished leaving us with just the unconscious. On the other end of the spectrum, music starts and remains in the dark, because there is no sight and reveals to us directly our deepest states. Music provides us a direct route inwards to our spirit by being a manifestation of pure time. The spectrum thus begins in the true inside, in time, which architecture would have us reach towards again but this time through space. The spectrum begins and ends with the attempt to get to a true inside.

If we were to look for analogy to the similarity yet difference between the arts at the end of the spectrum we can find one in the diapason, or octave, in music. Within the octave lie all the possible pitches of the musical world, pitches that when sounded together in pairs form varying degrees of consonance and dissonance. No pair of sounds, however, comes anywhere near to being as close to a true identity between sounds as when the two notes lie at the ends of the diapason, one octave apart. The identity closer is one pitch with itself. Yet two notes sounding an octave apart are clearly not identical but different.

This brings us to the end of our journey across the spectrum of the arts. What remains is to compare the two opposite ends of the spectrum and then see if we can seek beyond them. This is followed by two appendices containing additional remarks about time, space, and the senses.

Notes

¹ In this chapter I use the term building loosely to stand for any work of architecture. I do this only for convenience.

² The work though can take steps to create the impression that its space is not limited.

³ One could imagine its walls inlaid with thousands of eyes, perhaps components of a massive composite eye, by which it can see us from all sides at once. By extension, it can also see all of itself at once, one part viewing the other. In some sense we do feel seen in architecture in that in it we can come to learn about ourselves.

⁴ To find a way to attack an enemy in their stronghold, we circle it and wait for an opening or weakness to develop in any spot. Architecture, to protect us, must encircle us.

⁵ If the architectural space is likened to the womb, the fact that we can both enter and leave the building, suggests that we could extend the metaphor to include that of sexual penetration and removal.

⁶ In animation space was, figuratively speaking, being turned inside out by the radical demands of change in time. Now space is being turned inside out by space.

⁷ The same could even be said for small sections that concavely recede from us on the inside, except that they produce reverse, or negative, images of sculpture.

⁸ The biological cell is a distinct biological unit. Its self identity and its boundaries are never in question. Yet its life depends on its being in contact with the world outside it. To retain its structural identity, yet partake of the outside, its

walls are made up of a semi-permeable membrane. They selectively let things in, let things out, keep things in, or keep things out. The building too acts as a living organism. It acts selectively to control the amount of light, heat, cold, even certain types of people, that can come in from the outside, or things to be retained on the inside. A jail is an extreme example of the latter applied to the variable *people*. If too much flows in and out of the building from the outside, the building will not maintain its own architectural environment.

⁹ "Our life is an apprenticeship to the truth, that around every circle another can be drawn; that there is no end in nature, but every end is a beginning; that there is always another dawn risen on mid-noon, and under every deep a lower deep opens." Circles, volume V of "The Works of Ralph Waldo Emerson", Philadelphia, John Morris and Company

¹⁰ Figuratively we can say that sculpture ventured into our space from its space through an imaginary portal, or singularity, hidden in its center. However, it got stuck on the way through the portal, and ended up remaining still so that it ceased to appear to evolve in our time.

¹¹ One which can diminish the characteristics of the everyday environment.

¹² Henri Bergson makes a contrast between rational knowledge and intuitive knowledge. The former understands things from *without* and thereby indirectly, while the latter understands things from *within* and directly. If we can only "get inside" something we would know that something with absoluteness, in a way that does not vary with perspective or the relativity of concepts. At the very center of architecture, we reach the surface of an *ultimate* building, our self. This building does not have to be turned into yet another outside for us to be in it, for we already know ourselves from the inside through affective states and emotions.

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