

ON JOINING

By

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ON JOINING

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This study is conceived of as an exploration of the concept of the joint as it can be applied to and found within works of architecture. It is intended to develop one particular way of seeing and thinking about the role of the joint, in a greatly expanded sense, in both the production and analysis of architecture.

The process of production of a constructed work necessarily entails the joining of its elements: the physical materials from which it's made, the spaces within and around it, the bodies of its occupants, and the phenomena of the world in which it exists. The joint between any and all of these elements possesses the potential to communicate meaning and become a vehicle for poetic expression. This exploration seeks to develop an understanding of the essential qualities of the concept of the joint, to speculate as to the full range of its application to one's experience and interpretation of architectural works, and to explore possibilities of the joint's both being shaped by and shaping our ways of dwelling within the world.

## CHAPTER 1 PREFACE

Over the course of my learning about and experiencing of architecture I have been drawn to works that possess certain qualities, but for a long time I could not put precisely into words what I liked or felt about them. A few years back, while studying in Northern Italy for a semester, an analytic philosopher teaching a course on the aesthetics of architecture, asked me about a project that I liked very much, Peter Zumthor's Vals Therme. He asked me to tell him what, exactly, I liked about the building. I told him all sorts of things, vaguely, about light, space, and the senses, speaking for a while and suggesting much, but in the end, saying regretfully little. As the semester progressed we read a number of philosophical texts, on the nature of art and architecture, and wrote in response to them, trying to refine and clarify the concepts that we were using.

Concurrently, in another course, I was reading a set of theoretical writings assigned to me by a professor of architecture with a knack for understanding each individual student and a passion for making sure that they get the most out of all things that they do. To small groups of students she assigned writings that were to be read and presented to the entire class. My group's assigned writings were by Marco Frascari (*The Tell-the-Tale Detail*) and Robert Morris (*Some Notes on the Phenomenology of Making and The Present Tense of Space*). These works struck a chord in me. I began to understand a common thread connecting architectural projects that I was drawn to, and it had something to do with the concept of architectural detail.

Throughout the semester I was able to travel extensively and visit great works of both the architecture of antiquity (throughout Italy, Spain, France) and of modernity (projects by Scarpa, Corbusier, Fehn, Zumthor, and more). I've come to believe that in learning about architecture

there is no substitute for experiencing it firsthand. To be thinking, reading, and experiencing so much in such an amazingly rich context proved to be an incredible educational opportunity.

It became increasingly clear to me that I had an affinity for well crafted buildings. In saying this, I mean buildings that are well crafted as physical objects, but much more importantly, as the products of their makers' minds with keen attention given to the joining of certain elements. This statement is vague, but at this time it was an incomplete thought, one that I could not yet fully grasp, and I was still struggling to express it clearly.

Upon my return to the United States, I continued to study and develop these ideas under the guidance of the analytic philosopher I had studied with in Italy. I wrote extensively, or so it seemed to me at the time, on the concept of architectural detail. I accepted Frascari's proposal that "any architectural element defined as a detail is always a joint."<sup>1</sup> I devised typologies of detail - classifying them by the type of elements that were joined therein. In the end it became apparent that it was no longer necessary to speak of "the detail", for it was the concept of the joint that I was after. Discussion of architectural detail, inevitably, gets hung up in disputes over what the term "detail" includes or excludes. I've found that the concept of the joint captures much more precisely what I wanted to discuss and excluded things that seemed peripheral to what interested me. The product of the work that I did with "my philosopher," as I referred to him in my head, folded into my Masters Research Project which, in turn, has led here.

This collection of writings is the culmination of the process and experiences described above. It aims to communicate a set of ideas about a particular way of looking at and thinking about works of architecture. The position that is illuminated here is intended to serve as a lens, an analytical tool of sorts, through which to see and appreciate works of architecture. The

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<sup>1</sup> Marco Frascari, "The Tell-the-Tale Detail", *VIA7: The Building of Architecture* (1984): 23-27

concept around which this essay is organized is that of the joint. I'll begin by clarifying exactly what is meant when one speaks of a joint in a work of architecture. Then I will examine the application of this concept, in a variety of ways, to the analysis of, in Zumthor's words, the "artificial constructions" which collect under the heading of architecture.

I think that before beginning it is important to say that the way of seeing and thinking described here is merely one of many ways of looking at architecture. There are many positions that can be taken on the making and evaluating of the built environment, there are many different criteria by which constructed works can be appraised and judged, and this position on the significance of the concept of the joint in architecture is only one viewpoint. What I urge in its favor is that it is illuminating, that it is an open-ended system, that it can be taken in a number of different directions, and that it can be adapted to or merged with many other viewpoints. For the act of joining touches upon some portion of the fundamental nature of both conceiving of and constructing works architecture; and it is therefore a topic worthy of study and clarification.

## CHAPTER 2 THE JOINT

I begin by examining the word "joint". The dictionary defines it in many ways, but amongst the most applicable to the purpose of this study is "a part or place at which two or more things are joined."<sup>1</sup> According to this definition, for a joint to be manifest it is required that two or more things be present and that at some part or place these things are joined. While this seems rather straight forward it is also very general and a number of questions arise.

First one might ask: "what does it mean for things to be joined?" There are many definitions of "joining." However, all of the definitions have something in common: they suggest contact, unity, connection, and/or attachment.<sup>2</sup> These all imply the presence of two or more things that, at some part or place touch, come to meet, are bonded together, or become fused somehow. Therefore, as I deploy the concept of joining here, I will associate it with this group of qualities and potential relationships.

The next question that might arise is: "what are the things that are being joined?" This is an important question and one not so easy to answer as the last. It is important because, as this investigation is continued, it will become clear that what the things are will determine how they are most effectively joined from the aesthetic and practical standpoint of architecture. This is to say, that in order to know how to join well a given set of things one must first know and, more importantly, understand what the things are that one is joining. This is so because the methods or modes that are used in the making of a joint should depend on the specific nature of the things that are therein joined. Clearly, this must be further elaborated and qualified, but first it will be helpful to speak a bit more of the things that are joined.

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1 Oxford English Dictionary

2 Oxford English Dictionary

In a work of architecture, the things that are joined are its parts. It is undeniable that any work of architecture involves, in some way, the joining of parts. Even in the most general sense it, the architecture, relates in some way to not it, its context. At, some part or place these two things come into contact, are connected, or become united and a joint becomes manifest.

However this is admittedly very abstract, however. So let us look to a more concrete example.

Consider what we call buildings. A building is composed of materials - wood, stone, concrete, steel, and so forth - and these constitute many of its parts. These parts are rarely raw materials; they are more likely to have been processed to some degree to facilitate their inclusion in a constructed work.

These materials, typically the most basic physical elements<sup>3</sup> of a work of architecture, are joined together to form more complex elements which together constitute 'the whole' that is the building. For example, the foundation of a building can be constructed of cast in place concrete, wooden piles, or some other system. Onto the foundation, other parts may be added in one way or another to construct floors, walls, and a roof. This process is typical, and one would be hard pressed to find an example of a constructed building, historical or contemporary, that was not produced by putting parts together in some way. One type of counterexample that might be raised can be found in works of architecture that have been carved from monolithic stone, produced by a process of removal rather than being built up through the accumulation of a great number of parts. This example involves a different sort of joining, however, and I will return to it later to investigate how.

Architecture involves the joining of parts, but what more specifically is a joint in a work of architecture? Consider an example from architectural history - an ancient Greek temple (Figure

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<sup>3</sup> An element, in a general sense, is a thing out of which other things are made.



Figure 2-1. Column capital on the Erechthium in Athens, Greece. Photo by author.

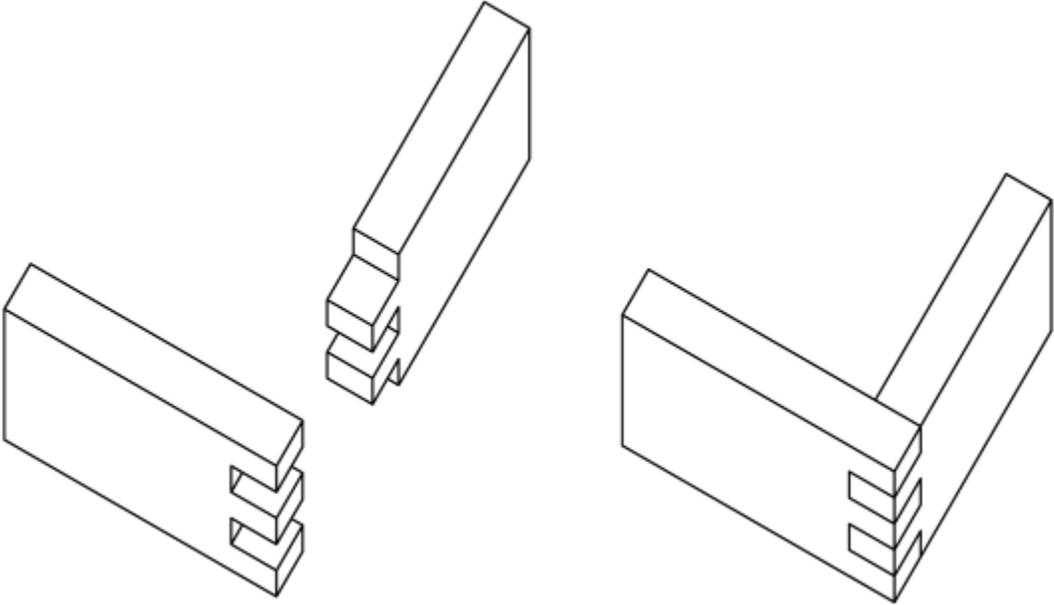


Figure 2-2. Diagram of pieces of interlocking wood. Drawing by Jamee Kominsky.

2-1). Marco Frascari, in speaking of the concept of the joint, calls one's attention to the capital of a column. Here, Frascari says, the capital constitutes a joint between the column shaft and the architrave.<sup>4</sup> By the conception of joint that I've begun to develop, there would indeed seem to be one here. The column capital is a part at which two or more things, the column shaft and architrave, are connected and become united. There is, however, another way to see this situation. Suppose that one were to remove the capital from its place between the column and the architrave. Does it still constitute a joint? It seems not. This is so because it cannot be that something's being a joint is manifest solely in one element. Rather, it is the relationship between elements which are joined that, in fact, constitutes the joint. This idea can be better understood through a simple diagram (Figure 2-2).

Suppose that one has two pieces of wood that one wants to join and carves them in such a way that they can interlock with one another. In the previous example there were three components that were being joined with one mediating between the other two. However, in this example there are only two. With no mediating component, it becomes clear that the joint is constituted by the relationship between the two pieces of wood.

On this way of understanding what constitutes a joint, one can see that Frascari's example can be seen as involving two joints. As noted above, one can see the capital itself as the joint, mediating between two other parts, but still the presence of the joint is dependent on the relationship between all three components. Thus one can also see this as involving two joints, one between the column shaft and capital and another between capital and architrave.

Now, let us expand our view of the classical column to include a greater number of elements; consider now the plinth, column base, column shaft, column capital, and architrave

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4 Marco Frascari, "The Tell-the-Tale Detail", *VIA7: The Building of Architecture* (1984): p 23-27

(Figure 2-3). While one can see each of these elements as being salient, one can also conceive of them in a different way. Three of these components, the column base, shaft and capital, can be placed under a single conception, that of a column; this requires that one, in an exercise of imaginative perception<sup>5</sup>, see these components as a whole or unit. So, perceiving these as a 'column', one might see joints between plinth and column and between column and architrave. While these are both still material joints, as they are connections between material objects, this is a more complex way of seeing this relationship. One must see the individual components of the column as a column.

The previous example highlights an important aspect of the way that we look at architecture, namely, that when doing so, we often exercise our ability to see things in different ways. This involves both seeing a thing and bringing it under a concept or particular aspect. One may see a column as a whole or as a collection of parts, and these are distinct things, because they involve bringing the column under different concepts, a unit, as opposed to a collection. Along the same line of thinking, one might see a collection of bricks that are stacked in an appropriate way as 'a wall', or one might see a set of rafters with plywood sheathing and clay tile on top as 'a roof'. In some cases one might see a particular set of physical parts as forming 'a porch' or some other architectural element of increased complexity. This ability to see things in different ways and bring groups of things under a unifying concept or aspect is important to the way that one sees architecture and I will have recourse to it again as I continue this investigation into the nature of the joint.

Clearly, as I am speaking of it now, a work of architecture is composed of many parts that are in some way joined. A joint is a part or place at which two or more things are joined, and the

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<sup>5</sup> Roger Scruton, *The Aesthetics of Architecture* (Princeton, Princeton University Press, 1979)



Figure 2-3. The Erechthium in Athens, Greece. Photo by author.

joint embodies the qualities of contact, unity, connection, and/or attachment. I've also said that, in a work of architecture, the things that are joined are the parts and elements from which the work is constituted, but thus far I've spoken only of its physical materials as the parts and elements. In a work of architecture, might there be things other than just material components that one would consider elements of the work?

Yes. In addition to the physical elements of a work of architecture, I will argue that there are also perceptual and temporal elements involved any work of architecture in virtue of its existence in the world. While I will soon discuss this idea further, it will be best to talk first about how one makes joints between material components, for it is there that one can begin to understand the essence of processes of joining.

### CHAPTER 3 MATERIAL JOINT

I'm going to discuss the process of joining materials by offering a variety of examples, but before beginning I need to address two important points. First, in the production of a work of architecture one joins materials intending for the joint to serve a particular purpose. In addition to this, as suggested in the previous section, the methods or modes that are used in the making of a joint should depend on the specific nature of the things that are joined therein. These two points are interdependent, but before exploring their interconnection I must address some additional questions that might arise.

In a work of architecture, what is the purpose of a joint between materials? The purpose of material joints may vary from one instance to another. Most joints in a work of architecture are intended to hold together, maintaining a more-or-less permanent connection between the components that are joined. Thinking back to the example of a column capital, clearly these components do hold together; they have maintained their connection over the course of millennia. Now, consider the mortar joint between two bricks in a masonry wall. Here the joint is intended to hold together its components, maintaining their combined role within the whole of the wall, but it may serve an additional purpose as well. In cases where such a wall is bounding an interior, conditioned space then the joint also serves the purpose of sealing the wall from unwanted passage of moisture and air. With still other joints, it is sometimes *not* the purpose of the joint to hold its components together in a static unchanging relationship. In the case of the joint between a door and its frame, the joint is operable and its components can exist in a range of relationships. In one state the door is open, allowing one to pass through the space between it and its frame. In another state the door is closed; here the joint between door and frame may serve to seal the assembly against the passage of unwanted things, as mortar did in the previous

example. Clearly, different material joints may serve different purposes. As such, it will be important to understand what the specific purpose of the joint is in each particular instance.

Also, if the making of a joint should depend on the *specific nature* of the things that are joined therein, what does "specific nature" mean in relation to material components? Essentially, the question is: "what is the specific nature of a material?" Any material has its own particular set of physical and perceptual properties that define it and distinguish it from other materials.

Physical properties of a material are aspects about it which are known objectively. They can be easily measured, quantified, recorded, and communicated. Physical properties, largely a function of the specific chemical composition and microscopic structure of a particular material, include things such as density and mass, compressive and tensile strength, and thermal conductivity, among others. Other physical properties might be determined or affected by factors such as the modes of processing the material or its shape and size. These physical properties will create predictable 'tendencies'<sup>1</sup> of behavior in a material and affect its interaction with other elements under the action of natural forces and laws. Understanding a material's physical properties and recognizing its tendencies can lead to the development of increasingly effective and specific modes of processing, utilizing, and joining a material.

In addition to physical properties, any material has its own set of specific perceptual properties. These properties encompass qualities and characteristics of a material that are primarily sensed or felt rather than measured or quantified; they are known subjectively rather than objectively. These might include things such as perceived lightness or heaviness or pre-existing associations that one might have with a material that evoke feelings such as comfort or uneasiness.

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<sup>1</sup> Robert Morris, *Continuous Project Altered Daily* (Cambridge, MIT Press, 1993): 77

In sum, the particular set of physical and perceptual properties that a given material possesses can be said to amount to its specific "nature".<sup>2</sup> In understanding the nature of a given material one finds the possibility of knowing how it can best be joined to other things. Possessing this knowledge and joining things in ways that are in alignment with the nature of their material can help one to insure that a joint effectively serves the particular purpose for which it was made. These ideas are best clarified and substantiated through the exploration of some basic and fundamental examples of material joints.

The Tempio di Giove at Cuma, to the North of Naples, Italy, is constructed upon a foundation of large blocks of solid stone (Figure 3-1). This foundation, as is the usual case with foundations, is intended to support the structure that is constructed on top of it and distribute its load to the ground beneath. The foundation was produced by stacking large blocks of stone, effectively joining them to form the whole. Here, the joint can be found at the faces of contact between blocks, the place at which individual components meet and are united. The purpose of joining blocks, in this case, was to bring the individual components into a state of unity to produce a functioning foundation. To this end, the joints have served their purpose. The foundation has effectively supported the temple above it, albeit in a state of ruin for reasons other than the failure of its foundation, for millennia. It has done so because the stone blocks were joined in a way that was in alignment with the nature of the material, stone. What, exactly, is the nature of stone as a material of construction?

The properties of stone vary by type<sup>3</sup>, but the type of stone used in this particular example

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<sup>2</sup> The concept of the nature of a material is a complex one and an understanding of it must typically be drawn from a number of sources. The Writings on the theories of Lodoli and Robert Morris offer useful information and ideas.

<sup>3</sup> Igneous, Metamorphic, and Sedimentary are the most general distinctions between types of stone. Within each of these classifications further distinctions are made based on material composition, structure, and other notable physical characteristics.



Figure 3-1. The foundation of the Tempio di Giove at Cuma, Italy. Photo by author.

is very dense and heavy. When used in large pieces, such stones can be stacked and, as a virtue of their great density and mass, the combined weight of the blocks and the friction between their meeting surfaces will serve to maintain the connection between joined components. Upon further examination, one will see that blocks are staggered from course to course rather than being stacked directly on top of one another. This further increases the ability of the joint to serve its purpose and maintain its role within the work, as each individual unit becomes joined to a greater number of other components<sup>4</sup>. Clearly, this method of joining, the contact of surfaces between large components, is in alignment with the properties of stone as a material of construction.

Consider this same method of joining in relation to a very different material - wood<sup>5</sup>. Imagine that, rather than stone, this foundation had been produced by stacking large blocks of wood, depending on the mass and weight of components and the friction between their surfaces to hold together the whole of the foundation. Some obvious problems arise. For one, because wood tends, in general, to be less dense than stone it is doubtful that the components would hold together under the loads placed upon them. In addition to this, the size of the wood blocks would be limited by the size of the tree from which they were produced, unlike stone which can be quarried in much larger pieces, limited only by one's ability to move and transport them. It is doubtful that simply *contact*, the method used here to join blocks of stone, would prove sufficient in joining blocks of wood, for this particular way of connecting is not in alignment with the nature of wood as a building material.

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4 In this example each unit is joined to six other units within its own wythe rather than just four, as would be the case if units were not staggered.

5 There are many different types of wood, each possessing a different set of physical and perceptual properties, so for my purposes here I will simply speak of "wood" in a general sense.

What method then, other than simply surface contact, might be used to join material components? Because the nature of most material components does not lend to the making of joints through contact alone, it is often necessary that components be *bound* together in some way. This means that, at the locus of the joint, components must be configured, reconfigured, or produced in such a way that they may be joined by virtue of their relative form. Essentially, this is to say that the components must either be or become shaped such that they can be placed into a relationship that satisfies the purpose of their joining. It is often the case that at component's place of meeting one component is made to receive another, a portion of one or more components being held within the other or others, in such a way that they become interlocked or intertwined. I shall refer to this process of shaping and interrelation at the locus of the joint as *articulation*. Articulation may occur either directly between joined components themselves or between them and a secondary, mediating component whose primary purpose is to bind the other components together. How might this notion of articulation be applied to joining wooden components?

Wood components may be joined together through a variety of methods of binding. I'll first address cases where components are bound directly to one another as a function of articulation at the locus of the joint.

Within the Japanese tradition of carpentry one can find many interesting examples of joints between wooden members. In these circumstances, as is the case with most material joints, components are typically joined for the purpose of holding together in a more-or-less permanent relationship within the whole of the completed work. To this end, individual members are carved at their place of joining in such a way that they can interlock and hold together with another member. The shape that the joined portion of each component is designed to

accommodate the forces or stresses that will act upon the member as a result of its placement within the work. For example, the top of a column will be carved differently than the end of a lintel, with the difference between the two reflecting the specific structural role that each member will serve. Here, the joint is made not only in response to the nature of wood as a material, which is easily and effectively carved into various shapes, but it also is adapted to suit the nature of each component as a structural element. In this example the joint fulfills its purpose by virtue of the member's articulation at the locus of the joint.

In the case of the woodworking joints typical of the western tradition, articulation is also often employed (3-2). In these cases, however, another component is often introduced; wood glue is incorporated as a binding agent to further enhance the ability of the joint to hold together. Here, wooden components are shaped both to allow components to interlock and to increase the area of contact between the surfaces of wood and a layer of wood glue, which itself becomes articulated as it molds its own form to bond to the microscopic texture of the wood's surface and harden.

Another common method that is often used to join components of wood is *nailing* (3-3). Components are nailed together by driving a metal spike through one component and into the other, simultaneously occupying both and effectively joining them. The two pieces of wood are, in a way, reconfigured as the nail being driven through them opens a space within them for it to occupy. Here, the components are placed into a relationship whereby they are held together by virtue of their relative shape. Typically, the purpose of such a joint is to bind the components together in a more-or-less permanent union, and if executed properly it does serve to do so. This method is effective because the nature of wood is such that it can be penetrated with a nail fairly easily and, as a function of the microscopic structure of the material, the nail will hold relatively

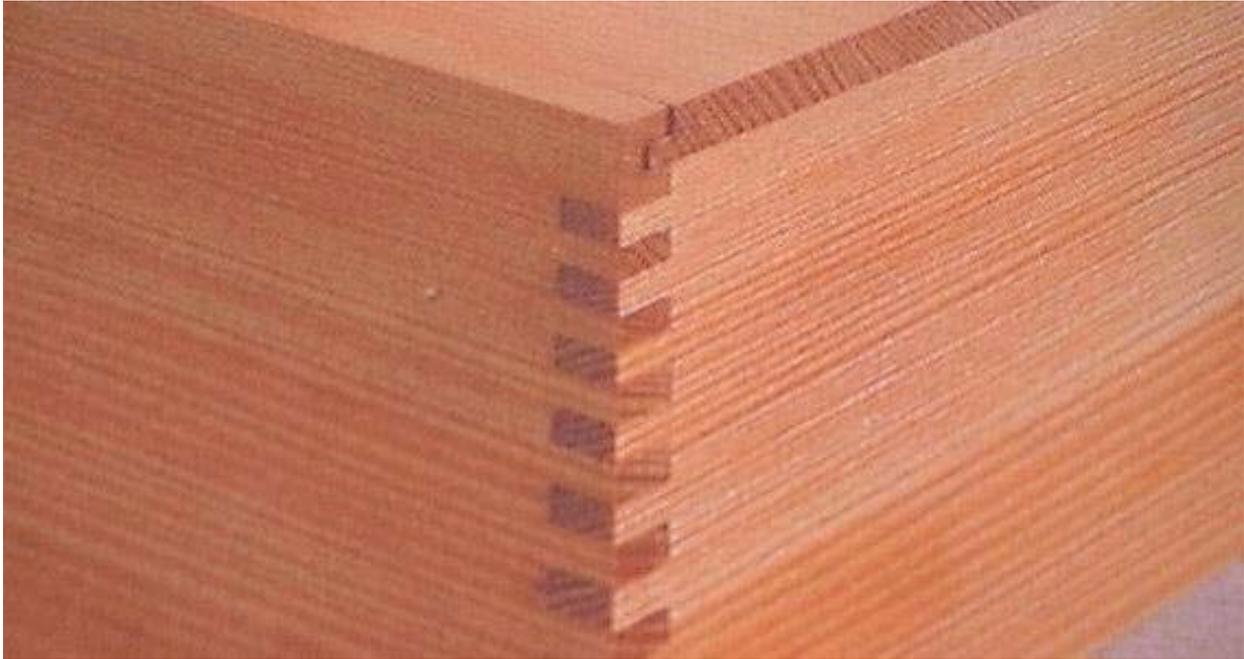


Figure 3-2. A woodworking joint in the western tradition. Photo by author.



Figure 3-3. A nailed joint between wooden components. Photo by author.

steady within the mass of the wood.

To bind wood components together in these methods might seem like common sense, but this is only so because through historical use they have become matters of standard practice. Clearly, these methods were not always known and over time their proper use was developed, most likely, through trial and error. Whatever the case, these methods are successful in their ability to effectively join wood components because they are made in alignment with the nature of wood as a material.

Returning to the example of joining large blocks of stone, could they be joined using the same methods that are commonly used for joining components of wood? Trying to nail two large blocks of stone together in the same way that one might join two wooden boards would seem ridiculous. Even if one were to try doing so, one would have great difficulty using a hammer to drive a nail into a block of stone. Because of the properties of stone, mainly its density and microscopic structure, one would most likely either bend the nail or succeed in chipping away the stone as if one were using a chisel. Now, let's imagine that one were to use a layer of wood glue between two large blocks of stone to bond them together at their surfaces. Doing so would amount to a complete waste of time and energy as the glue would contribute very little to holding the blocks together, they hold together just fine without the addition of glue. The use of mortar between blocks of heavy stone masonry, not an uncommon practice, might at first glance seem very similar to this suggested use of wood glue. Mortar, however, serves purposes in addition to holding the blocks together and, by its and stone masonry's properties, it is better suited to use in the making of this sort of joint. How about carving blocks of stone so that they can interlock? One could do so, but in the example at hand the joint has functioned perfectly well through contact alone. To carve blocks so that they can interlock would require a

substantial amount of time and energy. Other situations may warrant this, but here it is simply not necessary.

Clearly, as a result of the differing natures of the materials, the methods that are used to join components of wood will often be different than those used in joining large blocks of stone. It follows that one would make joints between blocks of stone differently than joints between components of steel, concrete, or glass. This is a consequence of the fact that any material has its own specific nature and, in order to most effectively join material components, it is important that one know and understand the particular sets of properties that govern their behavior in the world.

Thus far I've only addressed examples of connections between components of the *same type* of material, wood to wood and stone to stone. The same process of thinking that I've begun to develop can be applied equally well to instances where joined components are of different materials.

In construction, cast concrete and steel reinforcing bar are two materials that are often paired. They are used in conjunction because of their complimentary nature. Concrete has a very high compressive strength, but functions poorly under tension. Steel, because of its high tensile strength, is used to reinforce concrete at specific locations within a member to compensate for this deficiency. When combined, the purpose of the joint between these two materials is to bind them together completely so that they act as one. To satisfy its purpose, the joint between steel reinforcing bar and cast concrete depends upon the articulation of its components at the locus of the joint.

Steel reinforcing bar is typically produced with a ribbed surface rather than a smooth one (Figure 3-4). When liquid concrete is poured around it and hardens, the joint between the two



Figure 3-4. Steel reinforcing bar and concrete. Photo by author.

materials occurs at the entirety of their place of meeting. The material's meeting and interlocking at an irregular surface rather than simply meeting and abutting at a smooth one allows for the two materials to be fully bound together. This interlocking, a result of articulation of the components at the place of their meeting, allows for a stronger and more complete bond between the two materials. Here, the purpose of the joint is satisfied through the articulation of its components, at the place of their meeting, in response to the specific nature of the materials that are joined.

I have reviewed how the nature of materials affects the design of joints between material components. I've also begun to explore the concept of articulation as an integral aspect of binding components together in a relationship that constitutes a joint. I'll continue to address these aspects of joint making, but now it will be helpful to delve a bit deeper into the question of purpose as it relates to joint making.

The Superleggera Chair (Figure 3-5), designed by Giò Ponti, provides an interesting example of how material components might be articulated to fulfill the purpose of a particular joint<sup>6</sup>. Let's take a closer look at the connection between one of the chair's legs and the two perpendicular members that serve to support the seat itself (Figure 3-6). What is the purpose of this joint?

Primarily, because of its function as a chair, it is necessary that this joint in question be able to accommodate the stresses that will be placed upon it when someone sits in it. To this end, the members must be connected well enough to resist separation under these circumstances. Here, however, the joint serves a secondary, aesthetic purpose as well.

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<sup>6</sup> Although, by many, a chair would not be considered "architecture", it clearly possesses architectural qualities by virtue of its process construction.



Figure 3-5. The Superleggera chair. Photo by author.



Figure 3-6. Superleggera chair, corner detail. Photo by author.

This particular chair was designed to create an impression of lightness of both weight and form and it was therefore the purpose of the joint to exhibit these qualities as well. At the locus of the joint, wooden members have been shaped both to receive portions of other components and to extend into them, allowing all three to become interlocked (Figures 3-7, 3-8). Here, the articulation of components provides both for a joint of appropriate strength and, by minimizing the size of the connection and concealing its complexity, satisfies its aesthetic purpose as well. Here, the components have been joined in a way that is in alignment with the properties of their material so that it satisfies both the functional and aesthetic purposes of joining. The form of the joint is shaped by both its aesthetic and practical purpose and the nature of the components that it unites, both materially and conceptually.

Joining materials is clearly a very important aspect of the production of a work of architecture. Thus far, I've spoken of material joints in a very traditional sense, as the connection between easily recognizable pieces, singular units of materials, from which a work is constructed. I've discussed joining blocks of stone, pieces of wood, components of concrete and steel. Are these the only physical materials from which a work of architecture is composed? The answer to this question depends upon the way that one chooses to look at, *to see*, a work of architecture. There are some less conventional applications of the concept of a material joint within a work of architecture.

In some instances a work of architecture, or at least a portion of it, is designed around the presence of an object. This is sometimes the case in museums, where a particular architectural situation is designed to house a very specific work of art. In situations such as these, the material of the work of architecture is configured around the presence of the work of art in a way that is not dissimilar from the articulation of material components at the locus of a joint. In this case,



Figure 3-7. Superleggera chair, corner joint detail. Photo by author.

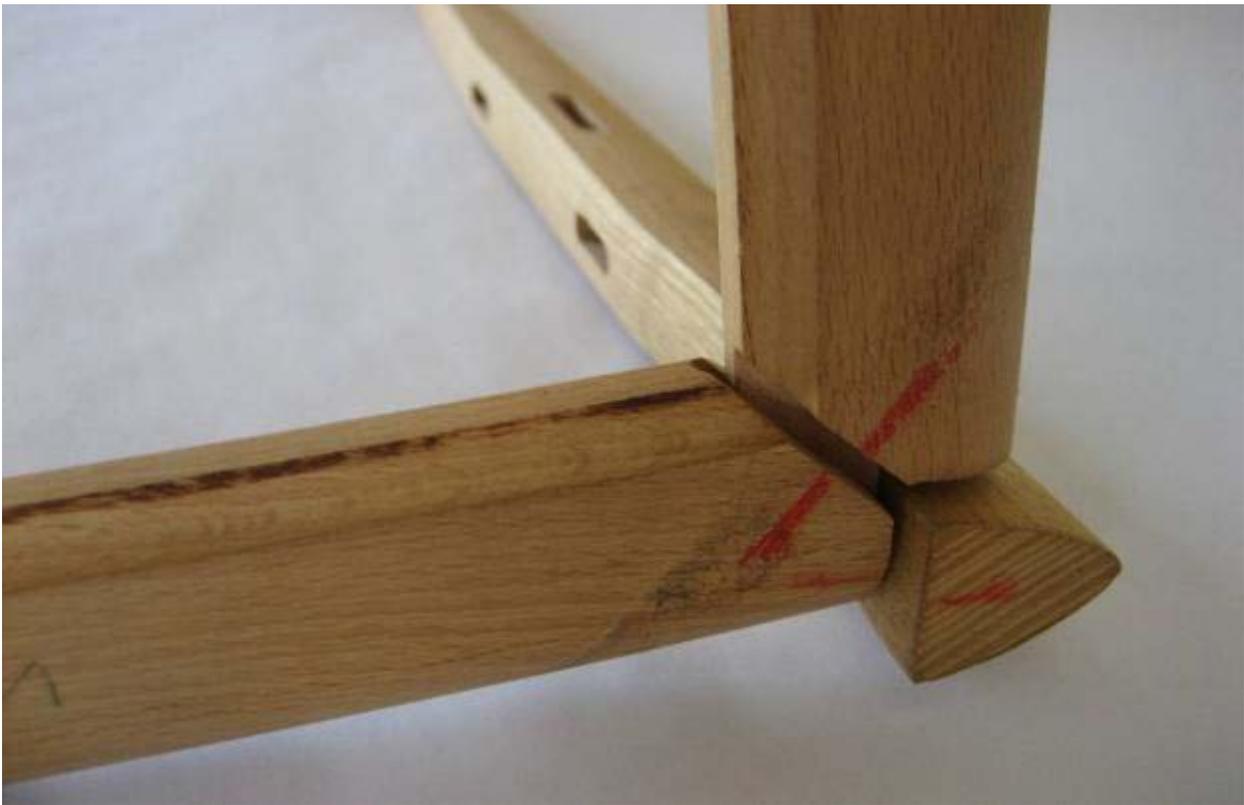


Figure 3-8. Superleggera chair, corner joint detail. Photo by author.

by virtue of the configuration of what is constructed in response to the presence of an object, the object can be seen as becoming a part of the work itself. Think of the façade of nearly any gothic cathedral. Such facades are typically adorned with countless statues, either carved out of the structural material of the work itself or of separate material and set into niches. It is doubtful that one would deny that such carvings or statues are material components of the work of architecture, and in essence their relationship to the work isn't all that different from some cases of the display of statues in museums.

Consider, for example, the display of the statue of the Madonna and Child in the Museo di Castelvecchio, designed by Carlo Scarpa, in Verona, Italy (Figure 3-9). Here, at the locus of the joint between architecture and object, the material of the work itself has been organized around the presence of this one particular work of art. For the purpose of display, the situation has been configured to respond to the size and shape of the statue and to the way that it is best viewed. Also, the statue sits upon a section of steel of which the shape, mode of construction, and proportion seem to respond very directly to properties and qualities of the statue as a material component. Essentially, this moment responds to the specific nature of the work of art through the articulation of the architecture's material so that it becomes united with the object that is held, i.e., seen as a part of it. The architect has recognized both the physical and perceptual properties of this object and joined it to the architecture itself.

Other examples of such joinery between architecture and objects can be found in the work of the Norwegian architect, Sverre Fehn. In his Hedmark Museum in Hammar, Norway, Fehn has accepted the objects of the museum's permanent collection as material components of his architecture and has forged a number of interesting material joints between them and the work of architecture itself. One example of such a joint can be found in the case of the display of a



Figure 3-9. Statue of the Madonna and Child in Museo di Castelvecchio. Photo by author.



Figure 3-10. Display of glass artifacts in the Hedmark Museum. Photo by author.

group of glass artifacts (Figure 3-10). These objects are held upon a glass shelf, covered with two other pieces of glass, and positioned within the space of a deep window. The clarity of the situation of display combined with its relationship to light calls attention to the transparency and luster of the objects that are held. The materials of the work of architecture are configured to respond to and communicate the properties and qualities of the objects that it contains, and, again, as it marks the place where these objects are united with the work itself, this constitutes a material joint between the objects and the work of architecture.

Another less conventional application of the concept of a material joint can be found when one exercises one's ability to see a collection of parts and bring them under a single concept. Earlier, I spoke of how one can bring the base, shaft, and capital of a column under the single concept of "a column." This same idea can be applied, for example, to a situation where two distinct portions of a wall, one composed of load bearing masonry and the other of wood, can be seen as a "stone wall" and a "wood wall" (Figure 3-11). Once these collections are brought under these concepts and seen as distinct and salient elements, we can then discuss the joint that is made between them.

The application of this idea of seeing joints between complex components can be applied at a variety of scales. At Scarpa's Brion Family Cemetery one can find an interesting example (Figure 3-12). Here, there exist a number of components that can be seen as salient things, with their various parts being brought under a unifying concept. With this in mind one might identify the "arcosolium", "entry", "meditation pavilion", and "chapel" each as a distinct material component of the work. While maintaining their distinctness, these components are linked, joined together within the whole architectural composition of the cemetery.

I'd like to examine the relationship between three of these components (the entry,



Figure 3-11. The joint between stone and wooden walls. Photo by Author.

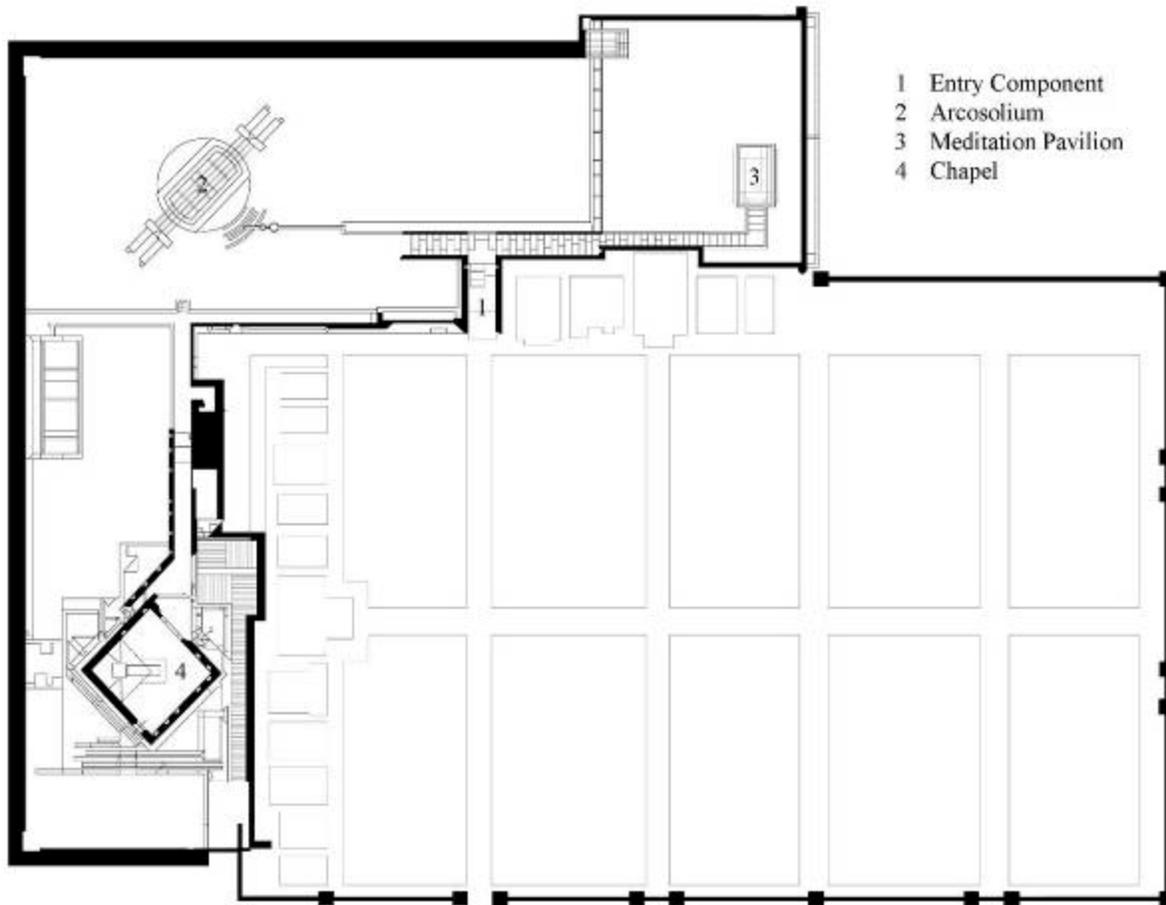


Figure 3-12. Plan of Brion Cemetery. Drawn by Jamee Kominsky.

arcosolium, and meditation pavilion) more closely. It's clear that each of these components can be identified as a distinct thing, but they can be seen as linked together through their common relationship to other elements which they have been bound to through an act of articulation.

At the edge of the arcosolium, water rises from a small fountain within a concrete vestibule and follows a path along a low, narrow concrete trough. Trough and flowing water extend, come to touch the entry component and become fused with it along one of its edges. Essentially, this element that carries water from the arcosolium to entry can be seen as binding the arcosolium and entry together through their mutual relationship to it. Each component is articulated in response to the presence of flowing water, it becomes a part of both components, and through it they become joined to one another.

The water continues to flow along the edge of the entry component and, as it approaches the component's end, the channel opens and empties into a large reflecting pool. Within this pool, on an island in its center is the meditation pavilion. Here, rather than binding, the presence of water can be seen to separate this component from the entry. But here a paved path extends from the space of the entry, provides passage across the distance of water between the two components, and becomes the floor of the meditation pavilion. Here the floor extends from one component to the other providing a connection that bridges the divisive presence of a pool of water.

These components are configured so that, while maintaining their individual identities, portions of each extend into the other, boundaries become blurred, and they are united through their mutual relationship to shared elements. Essentially these complex components become articulated, shaped, to receive one another and to interlock, effectively joining them. The nature of these components and the purpose of the joints between them are complex matters. The

modes of their joining, while clearly serving to connect physical components, are imbued with deep aesthetic and poetic meaning. Here, the part is made to be the bearer and communicator of the ideas of the whole and, thus, the joint serves a multiplicity of purposes. I will return to these ideas and the question of purpose in this particular example a bit later, but for now it should be clear that, even in the case of complex material components such as these, the method of seeing and thinking that is being developed can be effectively employed as an analytical tool.

This same way of seeing and thinking can be applied to the analysis of a work of architecture at an even larger scale. Just as one can bring a collection of things under a single concept in the case of a 'wall' or a 'porch', so can one bring the entire collection of parts that compose a work of architecture under the concept of 'the building'. In doing this, it becomes possible to speak of the place of connection between the building and some other entity such as 'the ground', for example.

It is useful to illustrate this idea through two, contrasting examples. Two works of architecture where the joint between building and ground is formed differently are Adalberto Libera's Villa Malaparte (Figure 3-14) in Capri, Italy and Mies Van der Rohe's Farnsworth House (Figure 3-15) just outside Chicago, Illinois.

In the case of Villa Malaparte the joint between building and ground is one of complete fusion. Set upon a rocky outcropping and surrounded by the sea, building and ground are joined so that the work of architecture feels as if it is part of its context. It seems to be a completion of the landscape, of the ground itself. This particular configuration at the locus of the joint is the result of the relationship between the nature of the dwelling, which conveys stability and security, and of the place upon which it sits, which seems unsettling but awe inspiring in its relationship to its surroundings. The nature of both components lends to the making of the joint in such a way with

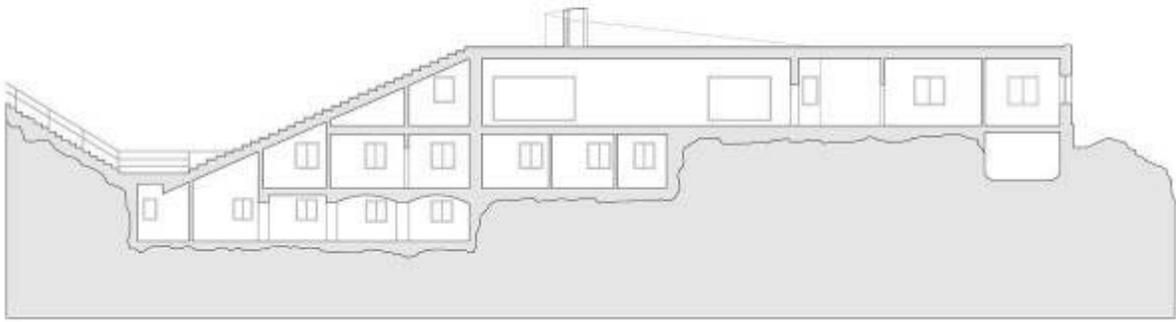


Figure 3-14. Section drawing of Villa Malaparte. Drawn by Jamee Kominsky.

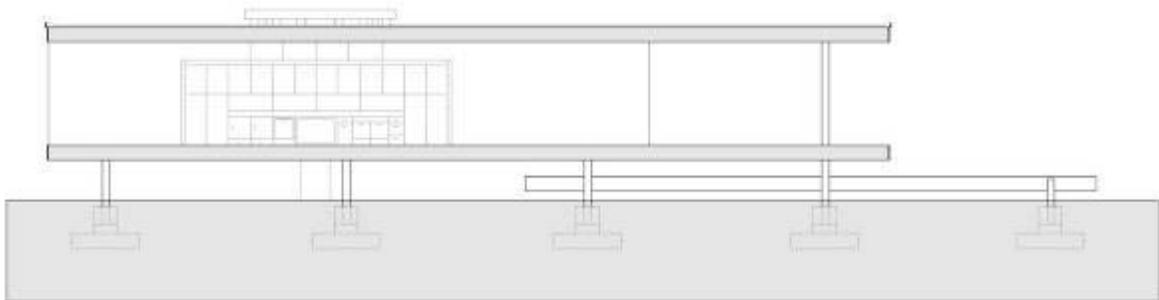


Figure 3-15. Section drawing of Farnsworth House. Drawn by Jamee Kominsky.

components being articulated so that they are effectively fused.

The Farnsworth House, on the other hand, relates to its ground in a much different way. The landscape here is subject to seasonal flooding from a nearby river. Because the flooding of the interior of a home is in its nature not a desirable thing, the joint between building and ground reflects both the nature of the location and what is located there. The building detached from the ground, is raised above it, sitting upon a steel structure that touches the ground at a series of precise points. Clearly, the joint between building and ground is quite different from that in the case of Villa Malaparte. In both cases, the purpose of the joint between building and ground is primarily to connect them, but each takes on a different form in response the nature of the things connected.

Thus far, I've discussed a range of scales and types of material joints and spoken of them in terms of their purpose and the specific natures of the joined components as determined by their physical and perceptual properties. I've shown that the form that a particular joint takes can respond to both of these things and that, in many cases, the concept of articulation is of critical importance in shaping the relationship into which components are set and so bound together. This way of looking at the joining of materials is the beginning of the analytical lens that I will develop. As it is applied to other, different elements of a work of architecture it will become clear that this way of thinking about the joining of materials can serve as an analog for the production of joints between any and all elements from which a work of architecture might be composed. This suggestion raises the question: 'from what other elements, rather than just its materials, might a work of architecture be composed?'

## CHAPTER 4 SPATIAL JOINT

"Architecture has [often] been understood as the art of bounding space."<sup>1</sup> This is to say that in the production of a work of architecture one creates boundaries within the space of the world that serve to distinguish the space of the work from that of its surroundings. In addition to this, the space of the work itself is often subdivided into other spaces that become distinguished from one another through the definition of their boundaries as well. In discussing a work of architecture it is common to speak of these "volumes" of space and their relationships.

If one thinks of a work of architecture in these terms, having its spaces and the relationships between them in mind when creating or evaluating a work, it should not be difficult to accept that "space" is an element, or essential component, of a work of architecture. However, unlike a work's physical components, the materials from which it is made, space is not a tangible thing. It is, rather than a physical component, a perceptual component, a thing that must be perceived by seeing in a particular way.

Most people have been exposed, at some point, to a diagram that illustrates the concept of figure-ground relationships (figure 4.1). These types of diagrams help to demonstrate one aspect of our ability to see the same thing in different ways. Here, depending on what one chooses to see as the figure (form) and the ground (background), one can see either a pair of black faces on a white background or a white chalice on a black background. Neither way of seeing is more correct than the other; they are both completely valid ways to look at the relationship between figure and ground as illustrated here.

The way that one can see figure-ground relationships in different ways is closely related to

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<sup>1</sup> Karsten Harries, *The Ethical Function of Architecture* (Cambridge: MIT Press, 1997): 214

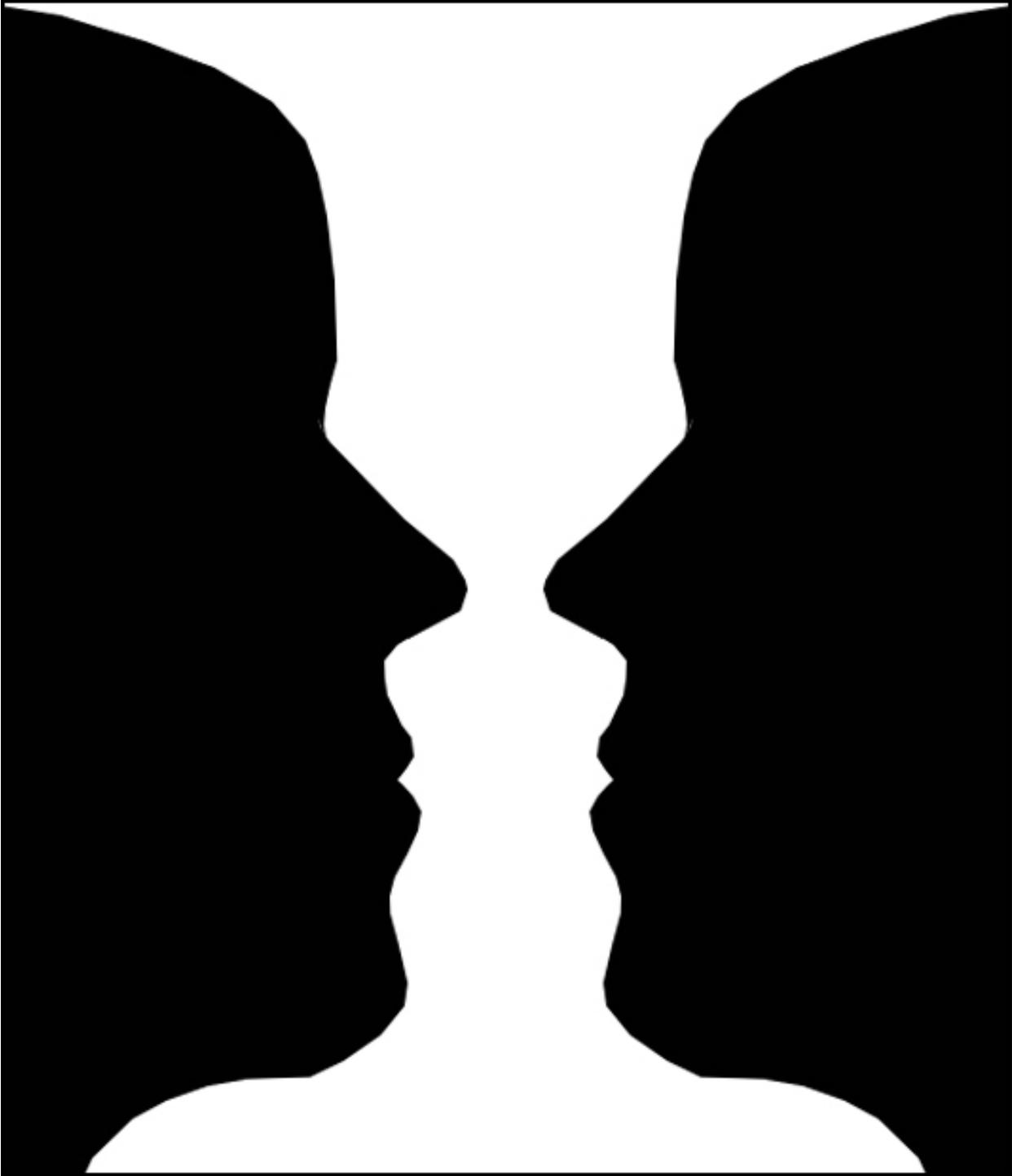


Figure 4-1. Figure ground diagram. Drawn by author.

the way that one can "see space", objectively speaking, within a given architectural situation. In the same way that one can see the chalice as defined between faces, one can also see a volume of space as being defined between two opposing walls. While this is a simple example—the definition and perception of space within a work of architecture are typically much more complex than this—in a very basic way it illustrates how one can see architectural space.

Within of a work of architecture it is often necessary that one be able to move from one space to another. One might pass from the exterior of a house to the interior, from a bedroom to a hall, or from a kitchen to a dining room. In each of these situations, to allow for passage from one space to another, these distinct spaces must be joined in some way. Here, the joint occurs at the place of transition from one space to the other. The locus of their joining may either be the place of the spaces' direct intersection and overlap or they may be seen as bound together by their shared relationship to a third, mediating space.

Not all spatial joints exist for the purpose of one's physical passage from one to the other. Spatial overlaps and juxtapositions might be made for a number of other reasons, and I will address some examples soon, but still the joint in these cases can be seen at the place where their volumes come to intersect or overlap.

The form of the joint between spaces can vary greatly. Spaces can be joined almost completely, with the boundary between them being subtle and nearly imperceptible, or at the other end of the spectrum spaces can be made to be almost completely separate, with the boundary between them being substantial and divisive. The joint between volumes of space can be of any degree of union along this spectrum, from complete connection to near disconnection. I'll soon discuss how and why a spatial joint might find its particular place within this range.

I've now suggested that space can be seen as an element of a work of architecture, that volumes of space are defined in a particular way, and that these volumes are often joined. Given these things, I'll now speak of the joint between spaces in the same manner that I've spoken of the joint between materials, through the "analytical lens" that I've begun to develop.

In the case of materials, I've spoken of two important factors in the production of a joint, that components are joined for a particular purpose and that how they are joined should depend upon the specific nature of the things therein united. Since I've already touched upon the first of these points, noting that spaces may often be joined for the purpose of passing from one to the other, I'll first address the latter point.

What exactly is the specific nature of a space? The nature of a space is defined by a number of factors and is a very complex matter. As with materials, one can speak of a volume of space in terms of both its physical and perceptual properties.

Physically, any architectural space has measurable dimensions which may be more or less precisely defined. Also, the elements that bound the space, things such as walls or floors, are constructed of particular materials which possess their own specific properties which will in turn affect the properties of the space. The amount of light in a space, natural and artificial, is one of its physical properties. A space's function, be it a very specific or more open-ended purpose, is one of the most important physical properties of a space. Temperature is another measurable property of space, but with things such as this the line between physical and perceptual properties begins to blur.

While temperature can be objectively measured, it is also something that is sensed by an occupant in a subjective way. As previously stated, perceptual properties are aspects of a thing that are primarily sensed rather than measured or quantified. Temperature would seem to fall

within both the categories of physical and perceptual properties. The same can be said of light, as one might judge qualities of 'lightness' or 'darkness' of one space relative to another in a way that may defy the objectively measurable quantities of light that are present.

Some properties that may be perceived in particular volumes of space may be more complex, resulting from the interaction of a number of its other properties. For example, a space may be said to be static or dynamic, comforting or unsettling, or might be brought under a variety of other subjectively decided aspects. All of these things, the set of a space's physical and perceptual properties, will accumulate to define that space's specific nature.

Of the aspects that contribute to the nature of a particular volume of space, *function* may perhaps provide us with the easiest example of how the properties of two spaces might affect the mode of their joining. This is so because the purpose for joining spaces is often informed by the relationship between the functions of those spaces. Consider three spaces in a typical house: a kitchen, a dining room, and a garage. Because of the differing functions of these volumes in relation to one another, the joints between them will be made in differing ways. The closely related functions between the spaces of a kitchen and dining room, things such as preparing and consuming food, will often lead to a high level of connection and interrelation being made between their spatial volumes. In the case of a kitchen and a garage, one typically needs to bring food from one's car to the kitchen and as a result these spaces are often in close proximity. However, the functions of these spaces, preparing food and storing automobiles or other services, will typically necessitate a greater level of separation, and a different sort of joint between them, than that of the previous example.

The implications of this way of seeing spaces and the joints between them can be seen as an important aspect of architectural works throughout history. Consider the example of Casa Del

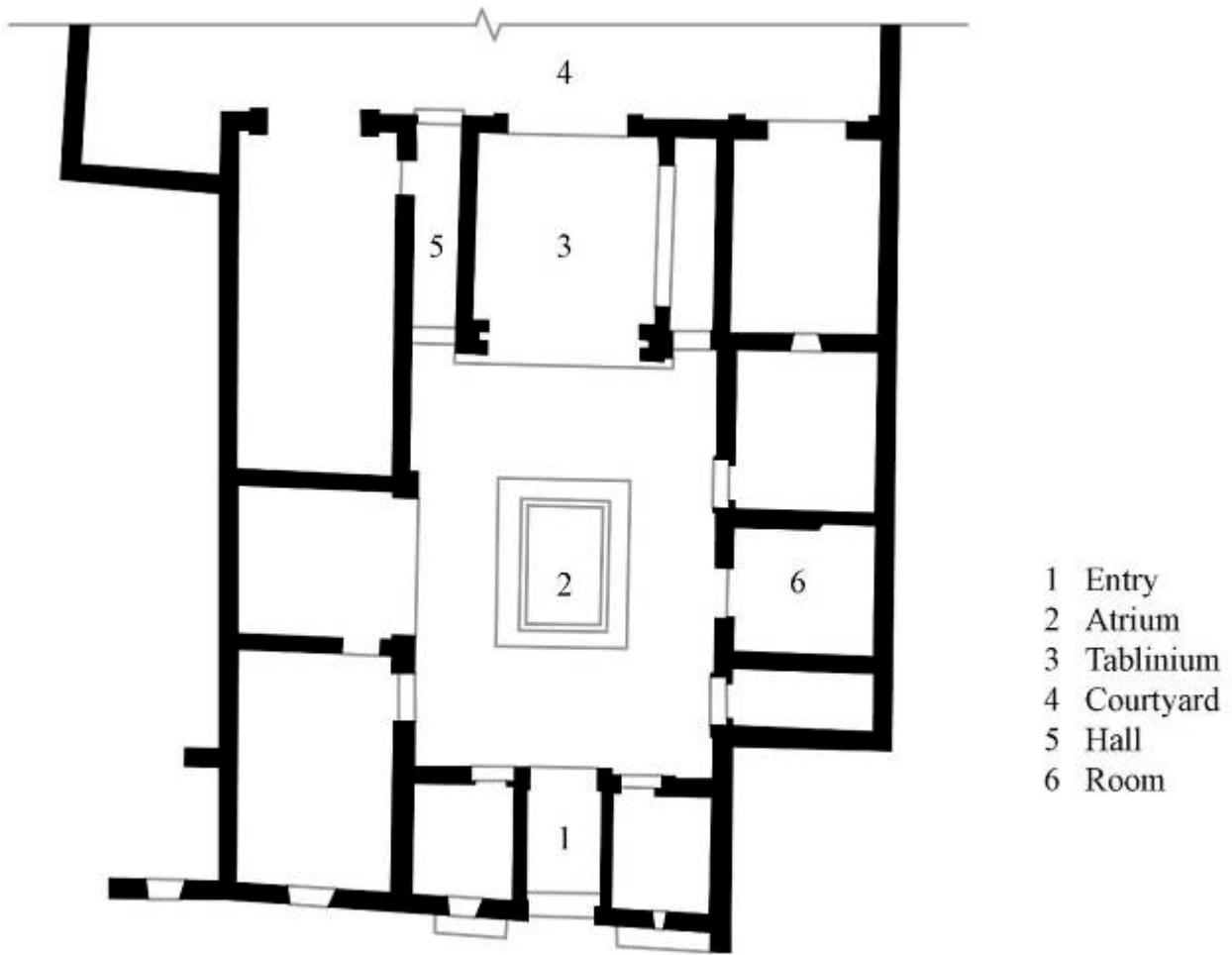


Figure 4-2. Partial of plan of Casa del Menandro. Drawn by author.

Menandro in Pompei, Italy. This house, as is typical of many houses of the ancient Roman Empire, is organized around a series of spaces that are open to the sky. Let's take a look at the portion of the house that exists between the exterior street and the largest of the interior courtyards (Figure 4-2). Here we can see a variety of spaces as being clearly distinguished from one another with a range of levels of connection between them. The central space is an atrium that, while serving to collect water and allow for the passage of light into the dwelling from above, provides space for circulation and organizes other spaces around it. Each of the spaces that are organized around the atrium is joined to it to allow for one to pass from one place to the other; however, the form that the joint takes is varied in response to the relationship between the specific nature of the atrium and that of the space which is joined to it.

Consider the relationship between the spaces of the atrium and the tablinium (Figure 4-3). These two spaces are joined so that they are almost completely fused, connecting across the majority of the tablinium's width. At the same time however, along the seam of their joining, a number of features also serve to distinguish them from one another. Within the atrium one takes a small step up to floor of the tablinium. This step, while clearly an extension of the tablinium floor, exists within the space of the atrium. Also, immediately at the joint between the two spaces, the ceiling height of the tablinium drops to a level lower than that of the atrium and a pair of engaged columns are incorporated to further distinguish the spaces from one another.

This spatial joint, shaped by the configuration of the material that bounds it, is shaped in response to the purpose of the joint and the nature of these two spaces. Without even knowing the precise function of these spaces one can "read" their relationship from the shape that the joint between them has taken. Clearly, from their location within the work as a whole and their relative connectedness, one can tell that these spaces served a rather public function within the



Figure 4-3. Casa del Menandro, joint between atrium and tablinium. Photo by author.

dwelling itself and that they were of primary importance. This is in fact the case. The atrium is the first space that one progresses to from the entry, and it plays an important role as both an element of circulation and in the distribution of light. The tablinium is the primary space of gathering in this portion of the house, a space in which to sit and converse with guests or take a meal.

The functions of these two spaces, both very communal in nature, are closely related and the joint between them can be seen to clearly express this. The atrium and tablinium meet at a place that is precisely of neither one nor the other, but also of both. Their boundaries are simultaneously blurred and distinguished, creating a moment of exchange and overlap between them. This place of union has been articulated, shaped in response to the specific nature of each space and the relationship between them. Through this, the joint is formed such as to satisfy the purpose of their union, in terms of both physical passage and the roles of these spaces within the household.

An understanding of these ideas can be further developed through the comparison of this spatial joint with another. At another side of the atrium one can find a secondary room connected to the atrium merely through the space of a threshold, a doorway (Figure 4-4). The doorway constitutes a relatively small portion of the length of the room's volume, rendering the space of the room quite distinct and separate from that of the atrium. From the form that this joint has taken, this room, a space that might have been used as a service space or a bedroom, can be understood as having a less communal function than that of the spaces in the previous example. This relationship is one of a greater level of disconnection than that between tablinium and atrium, effectively separating functions and serving mainly to connect these spaces for the



Figure 4-4. Casa del Menandro, joint between atrium and room. Photo by author.

purpose of physical passage. Again, this joint between spaces has been articulated in such a way as to reflect the relative nature of these two spaces.

Returning one's attention to the tablinium, this situation can also be thought of in a different way. In another sense, this space itself can be seen as a joint between the volumes of the atrium and the portico that surrounds the larger, exterior courtyard. The portico serves functions quite similar to those of the atrium: circulation, distribution of light, and the organization of other spaces. Mediating between these two spaces, the tablinium itself becomes a connection of importance by linking atrium and portico. As a joint, it allows for a strong visual connection between these two spaces and a high level of connectivity between the greater household and any activities that might be held within the space of the tablinium.

The situation grows more complex when one's attention is directed to the hall that is adjacent to the tablinium, a narrower and more direct connection between atrium and portico. Here, the form that the joint takes is one that implies the purpose of primarily providing for physical passage, rather than a space for prolonged occupation. This joint has been articulated such that, through its proportions and configuration, it can be seen to communicate this purpose.

If one considers these spaces together, the tablinium and hall, as the joint between the atrium and portico, one can clearly see the influence of the nature of connected spaces on the configuration of this situation. The joint has been shaped so that it expresses the functional and organizational aspects of the spaces that are joined therein, and the joint comes to serve its purpose by virtue of its articulation in response to these things.

This same way of seeing can be applied to the entry space of the house and, by contrasting it with the previous example, these ideas can be further supported. The entry space, serving to connect the public street to the interior atrium, is a narrow space that, like the hallway from the

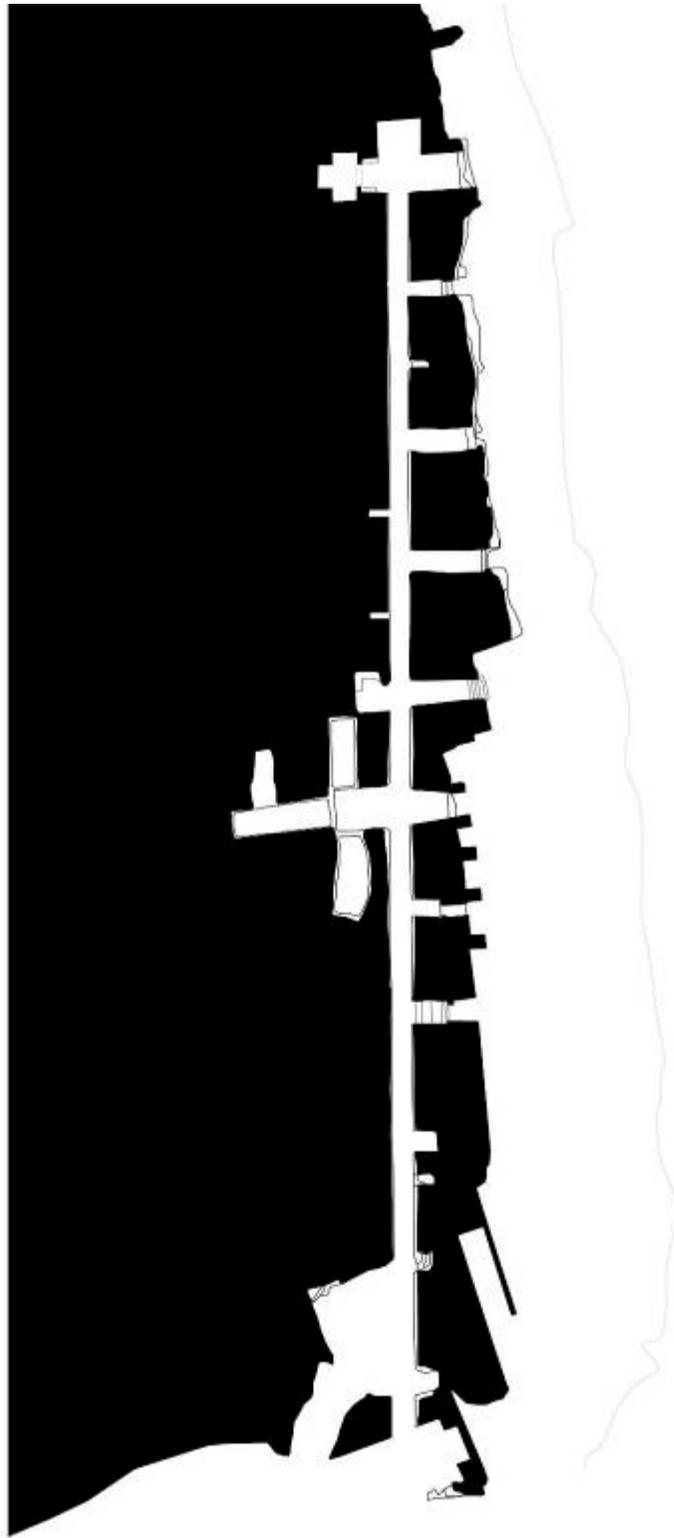


Figure 4-5. Plan of Grotta della Sibilla. Drawn by author.

previous example, would seem to primarily serve the purpose of physical passage. Unlike the previous example, here the joint between atrium and street consists of this space alone. Because of the private nature of the interior of the dwelling in relation to the public street, the entry space functions both to disconnect, in a perceptual sense, and to connect, in a physical sense.

Essentially, while the entry space must allow for passage from exterior to interior, joining them, it must also provide for some level of privacy. Thus, the space of the entry is articulated, configured to serve its purpose as a joint.

While both of these spatial situations within Casa Menandro can be seen as joints between the atrium and another space, the differing forms that they take are a result of the differing relationships between the natures of connected components. In both situations, the joint is made to serve its purpose through the articulation of its material and space at the locus of the joint.

Previously, I mentioned that even situations where a work of architecture is not produced through the joining of material parts it still does, in some way, involve the making of joints. The Grotta della Sibilla at Cuma, Italy (Figure 4-5, 4-6) provides such an example. A very old work of architecture begun by the ancient Greeks, the Grotta consists of a series of spaces carved into the earth itself at the site. Simply by bounding the space of the work itself (it), distinguishing it from that of its surroundings (not it), and providing some means of passage between them, one has effectively joined 'interior' to 'exterior'.

In the case the Grotta, the space of the work has been formed through a process of removal. The stone of the site has been carved so that it holds the space of a long tunnel within it, defining a path from the entry to a chamber at the tunnel's end. Along this path, several secondary spaces intersect with the space of the tunnel, each constituting a joint in multiple senses. In one way of seeing it, a joint occurs at the place of meeting between each secondary



Figure 4-6. Interior view of Grotta towards entry. Photo by author.

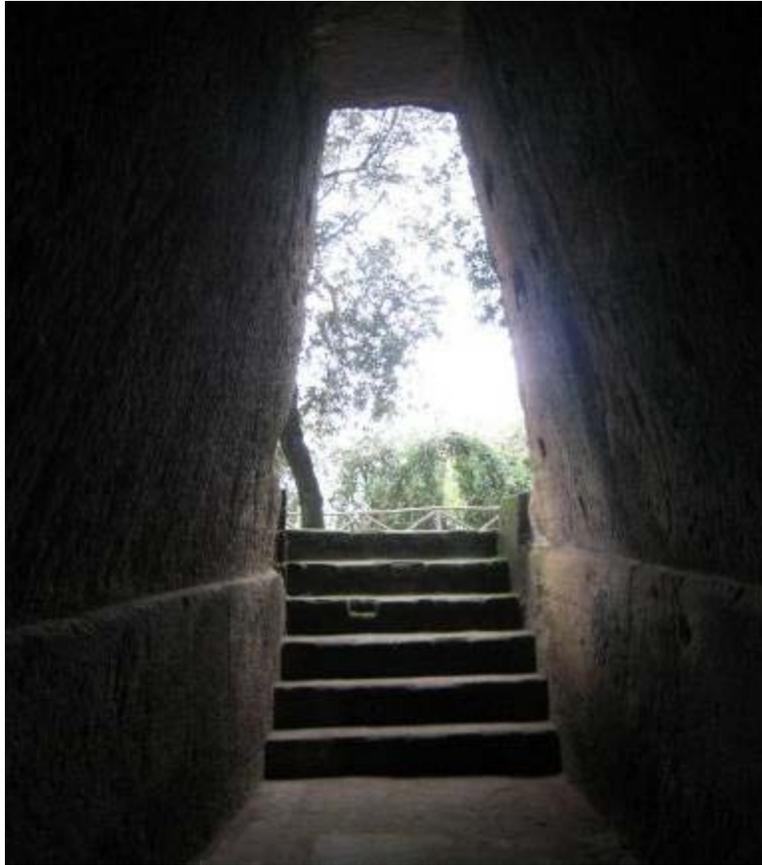


Figure 4-7. A secondary space of Grotta with stair to negotiate slope. Photo by author.

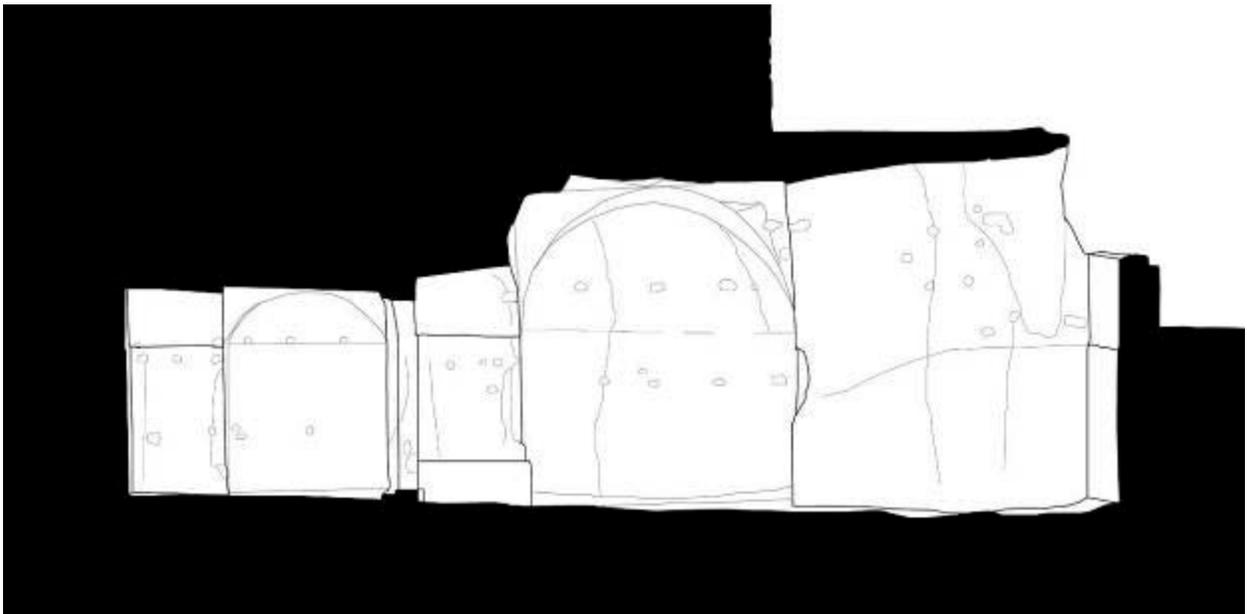


Figure 4-8. Section drawing through a secondary space of the grotto. Drawn by author.

space and the tunnel. In another, each secondary space is a joint itself as it connects the tunnel to the space of the exterior. Let's examine the latter of these views a bit more closely.

The tunnel, from entry to chamber, slowly descends into the mass of stone as the ground outside and along the length of the tunnel moves with the natural topography of the site. This makes for a constantly changing relationship between the level of the ground within the tunnel and that of the exterior. As a result, each of the secondary spaces that serve a connective function must somehow respond, at the place of connection, to the relative levels of tunnel and exterior in order to serve its purpose. As the relationship between ground and tunnel is different at each joint, so is the form that the spatial connection between them takes.

Some of these secondary spaces serve to provide for physical passage from tunnel to exterior (Figure 4-7). Where this is the case, the elevation shift is negotiated by a series of steps, shaping the space of the joint in such a way that it responds to the relative levels of interior and exterior. In the cases of some of the other secondary spaces, physical passage is not provided for and the joint between interior and exterior at this place can be seen to serve a different purpose (figure 4-8).

Such moments that do not serve to provide physical passage from the tunnel to the exterior may be seen to exist for a number of other purposes. Certainly, they allow for the passage of both light and air from the exterior into the depths of the interior. Also, they may be seen to provide views between interior and exterior for those who occupy its space. In any of these cases, it can be seen that the form of the spatial joint responds to these other factors, as they have been shaped differently than those that serve the purpose of physical passage.

To suggest that these spaces have been configured in response to the presence of elements other than material and space, things such as light and air, implies that these things too might be

considered elements of the work, in a way. Earlier, in the work of Carlo Scarpa, I spoke of flowing water as though it were an element of the work as well. Might such phenomena of the world be considered elements of the work, the basic things from which it is composed? If this is the case, what might these things be and what implications might they have on the production and experience of architecture?

## CHAPTER 5 PHENOMENOLOGICAL JOINT

When a work of architecture is constructed it is given form and substance within the world. As a consequence of this, it is exposed to all of the elements of the natural world: the air of our atmosphere, light from the sun, water from rain, wind, snow, and so on. It is unavoidable that a work of architecture is engaged by at least some of these things; it is a fact of its existence within the space of the world.

Because a work of architecture is necessarily exposed to natural phenomena, it is common for the work to respond their presence through the configuration of its material and space. The history of architecture is replete with examples. Think of the relationship between buildings and the phenomenon of natural light. From works of ancient times to present day it can be seen that material and space have been configured in response to the presence of natural light. In such cases it should not be difficult to accept that the phenomenon of natural light can be seen as an element of these works of architecture.

In accepting such phenomena as an elements of a work of architecture, an important distinction must be drawn between these and the other elements that I have addressed thus far, material and space. In comparison to elements of material and space, phenomenological presences are, by their very nature, less constant. Considering natural light once again, this aspect of phenomena can be easily illustrated. Daylight, for example, is perpetually changing in both orientation and intensity as a result of the relative movement of earth and sun, so that the qualities of light vary by both time of day and year. Rain, also, is never a constant presence; a bout of rain begins, is varied throughout, and ends in a way that material and space cannot. While I have referred to material as a physical element and to space as a perceptual element, I

will refer to these phenomena as temporal elements, which are in a constant state of flux throughout the passage of time.

Given that phenomena of these sorts can be seen as temporal elements of a work of architecture, where might a joint occur between elements of material, space, and phenomena? Because the engagement of a work by the forces of nature is a situation of default, it is often the case that the elements in question are in a state of constant contact with the material of the work. The air of our atmosphere illustrates this idea. It envelops and fills nearly any work of architecture, touching it at virtually all points and places. Since the place of contact between these things is so extensive and because this relationship is simply a result of the buildings being, where and how are we to understand the joining being the product of architecture, so that we can find in it some architectural significance? The answer to this question can be found with the concept of articulation.

At particular places, the material and space of a work of architecture can be seen to be configured in response to the presence of a given phenomenon. A window (Figure 5-1), an opening in a wall that might allow for the passage of light and air, or a scupper along a roof's edge, which may collect and control the flow of rain water (Figure 5-2) are two examples. These things mark the place of interaction between a work of architecture and the phenomena of its environment and, thus, they can be seen as the locus of their joining. The form that these joints take, as with all other types of joints, should depend upon the purpose of the joint and the specific nature of the components with which it deals.

The purpose of a given phenomenological joint typically depends both upon what the phenomenon in question is and its function within the work. Natural light is often used to illuminate interior spaces and a joint that counts it as a component will typically involve the



Figure 5-1. Windows at Gaudi’s Casa Mila. Photo by author.



Figure 5-2. Scuppers directing the flow of rain water. Photo by author.

production of an opening through which it can pass. Rain water is often collected and transported away from places where its prolonged presence might cause damage. In such a case, the joint will often take the form of a channel that allows for gravity to direct the flow of water along the desired route. Because of the high level of specificity inherent in natural elements and one's purposes in dealing with them, I'll address the purpose of phenomenological joints on a case by case basis.

In some instances, because the engagement of a work by the forces of nature is a situation of default, it may be such that a particular phenomenological joint may have no purpose at all. For to have a purpose implies that there was intent behind the thing in question, and in some cases relationships that one might see as constituting phenomenological joints are simply repercussions of the buildings existence in the world. Stains that accumulate on the exterior of buildings as they become weathered over time under the action of nature serve as examples of such relationships<sup>1</sup>. The place where a material changes, where it becomes stained or develops a patina, marks the place of contact and union between the material of the work and the elements of its environment. This is can be seen as another implication of the process of articulation, whereby elements that are united are reconfigured in response to one another at the locus of their joining. It may, however, be the case that such a joint can be made intentionally. In such a case, it might serve the purpose of expressing the relationship between the work of architecture and its context as it persists through the passage of time. I'll soon elaborate more upon this.

In the production of a phenomenological joint, in addition to its purpose, the specific nature of its components should also be considered. As with all other elements that I've discussed, one can speak of the nature of phenomena in terms of physical and perceptual

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1 Moshen Mostafavi and David Leatherbarrow, *On Weathering* (Cambridge: MIT Press, 1993)

properties. Any phenomenon will have sets of such properties that guide both its action and interaction in the world and that have implications for its perception by an experiencing individual.

Considering this in relation to the phenomenon of natural light, one might raise the question: 'What is light's specific nature as a phenomenological element of a work of architecture?' Essentially, this is to ask: 'what are the physical and perceptual properties of light?'

Much is known about the physical properties of light. Its amount and intensity can be measured and quantified. It behaves in predictable ways, reacting with materials and surfaces and traveling through space as a function of physical laws and properties. Natural light's intensity, direction, and patterns of change throughout the day and year have been documented throughout history, and their future values can be predicted with a high degree of accuracy. Knowledge of these things can help one understand how natural light can be manipulated and used purposefully as an element of a work of architecture.

The perceptual properties of light, a collection of sensed qualities and relationships, while understood less precisely than its physical properties, may actually be a more important factor in its use in architecture. Light and shadow, the absence of light, have far reaching implications upon the perception of space and material by an occupant of a work of architecture. The quantity and quality of light within a space may affect one's awareness of its extents or the apparent depth of its surfaces. Light can also be used to focus one's attention on particular parts or aspects of a space, while relative values of light and darkness have the ability to instill particular feelings within an occupant, such as comfort or uneasiness. The perception of light within a work of

architecture may involve any of these aspects and, in accepting light as a component of a joint, their implications should be carefully considered.

With this understanding of phenomena as elements of a work of architecture, I'll now revisit the example of the Grotta della Sibilla. Here, the secondary spaces that serve as spatial joints between interior and exterior can be seen to have additional purposes. These spaces allow for the passage of natural light into the depths of the Grotta. The rhythm of openings is spaced so that it creates alternating zones of light and shadow along the entire path of the tunnel. By being so-configured, these spaces provide enough diffused light to illuminate the whole of the tunnel for the purposes of walking along its length and occupying its spaces. In addition to this function, these secondary spaces also allow for the flow of fresh air into the tunnel, maintaining the air quality within it. In addition to functioning as spatial joints, these moments can be seen as the locus of joining between environmental phenomena and the material and space of the work. At each of these places, the material and space of the work has been configured to receive and articulate these phenomena to serve the purpose of their joining.

This way of seeing a joint between phenomena and material also finds expression in the case of Casa Menandro at Pompei (Figure 3-3). Here, the material of the atrium, and thus the space that it bounds, has been configured to respond to the presence of both light and water. In the center of the space, light enters through an opening in the roof and diffuses through the atrium, passing to other spaces beyond. Additionally, the roof was constructed so that it can channel rain water which is in turn collected within a depression, referred to as the impluvium, in the center of the room's floor.



Figure 5-3. View of central bath at Vals Therme. Photo by author.



Figure 5-4. Vals Therme. Photo by author.

Because of its placement relative to the opening in the roof, the water held within the impluvium<sup>2</sup> would have reflected a portion of the light that struck it, helping to illuminate the room. This interaction is a result of the relationship between the properties of light and water, elements which here are united in space through the particular configuration of the work's material. At this moment within the house, the elements that are joined are articulated to allow the joint to serve a multiplicity of purposes.

In the Vals Therme (Figures 5-3, 5-4), a building designed by Peter Zumthor, located in the mountains of Switzerland, some of these same ideas can be seen at work, expressed with an increasing level of complexity. This work, a thermal bath house, is designed such that one feels as though one is dwelling within the earth, almost as if its space were that of a cave. Set into the side of a mountain, the spaces deep within the bath are farther from its exterior sides than natural light can effectively penetrate. To accommodate for this, the architect has employed a system of openings in the plane of the roof from which light may enter from above.

However, if light were allowed to flood the interior of this building its ability to convey the impression of occupying a cave-like space would be compromised. To serve both purposes of allowing the passage of natural light and of maintaining the desired atmosphere of internal spaces, the openings in the roof have been designed so that their depth is greater than their width, forming them as narrow slices though the plane of the roof. This particular configuration of the work's material, by virtue of light's physical properties, focuses the illumination that enters into a series of concentrated and directed slivers of light (Figure 5-5).

Additionally, this system of incisions made within the plane of the roof has been designed so that openings, and thus slivers of light, correspond to divisions of internal space. Also,

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<sup>2</sup> Originally the impluvium would have contained water, but the opening in the roof has been sealed with glass to aid in the preservation of the spaces frescoes.



Figure 5-5. View of light sliver and its relation to space at Vals Therme. Photo by author.

because of the way that this system is structured, at least a portion of the light that passes through each incision is made to strike the surface of a wall, finished in stacked slate masonry. As the light rakes across the slightly uneven stone surface of the wall, it casts a thin shadow of each course of masonry upon the course beneath, accentuating the particular material qualities of the wall and its mode of construction.

This particular interaction between light and material can be seen to be the result of an act of articulation, whereby the material of the work has been configured so that it demonstrates<sup>3</sup> the nature of the components that are there united. While it clearly serves the purposes of connection and function, interacting with and providing light within the interior, this moment also can be seen to play a role in the ability of the work of architecture to express ideas about the nature of one's occupation and experience of it.

As this building functions as a thermal bath house, water and the phenomena that relate to it can be seen as another of its elements. The baths draw their water from an ancient spring that flows from the mountain on which they are sited. Along the length of the entry hall (Figure 5-6) there exist a number of small spouts from which water is constantly flowing. From these spouts the water spills down the wall of concrete from which it emerges, collects in a channel along the walls base, and is directed towards a drain at the end of the channel. Because the water comes from a natural spring, it is very rich in minerals. As the water runs down the concrete wall, these minerals collect and accumulate on its surface, oxidizing and forming a rich, red patina (Figure 5-7). This effect results from the nature of such mineral rich water as it runs continuously across the surface of a material, and deposits its minerals in exposure to air. This change in the material, the staining of its surface as a result of its interaction with flowing water and air, is akin

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<sup>3</sup> Marco Frascari, *Monsters of Architecture* (Savage, Maryland: Rowman and Littlefield, 1991)

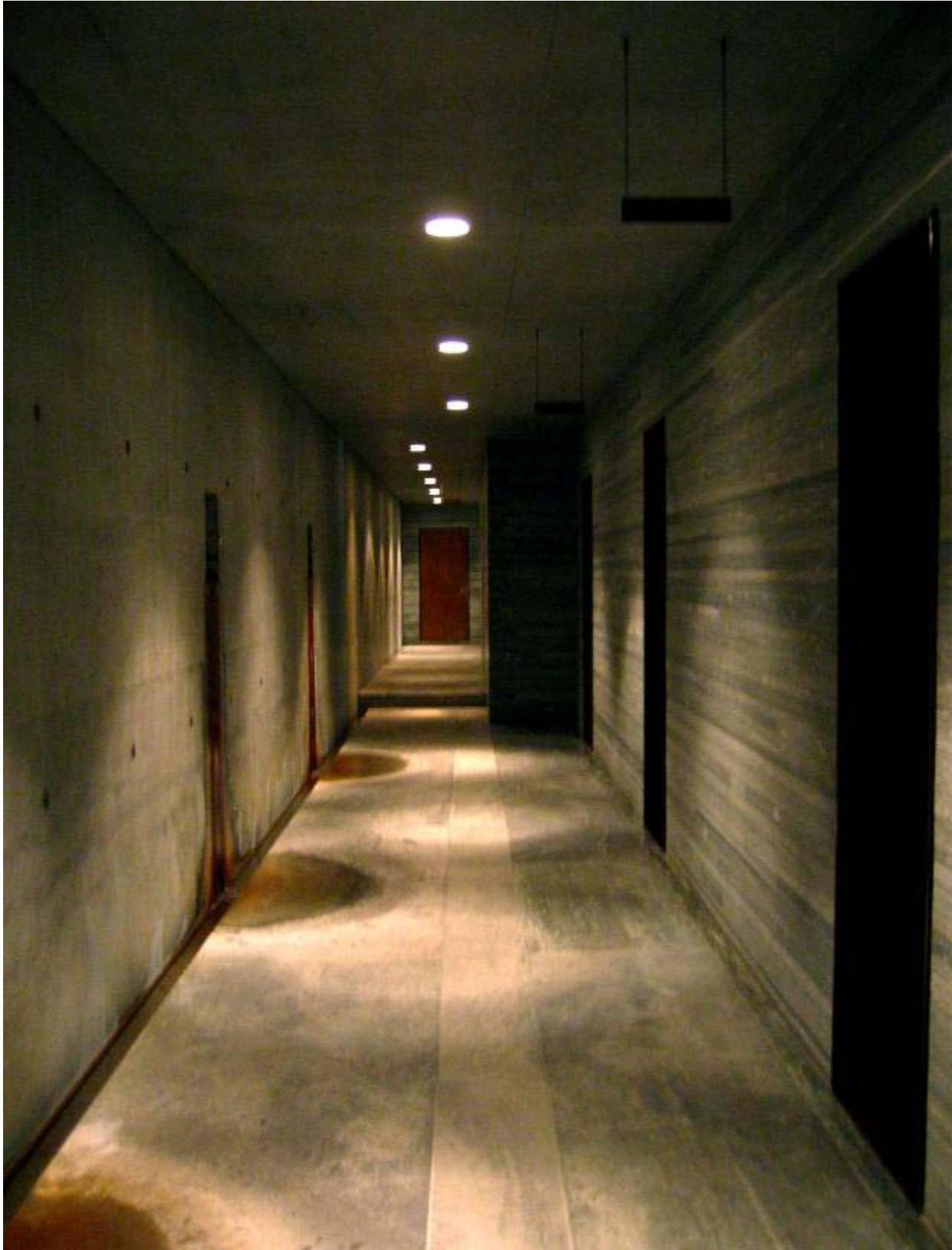


Figure 5-6. View of entry hall with water spouts at left. Photo by author.



Figure 5-7. Oxidized patina. Photo by author.

to a process of articulation. Here, components become reconfigured at the place of their union and through a process of accumulation over time they become bound together. As discussed above, this phenomenological joint can be seen to demonstrate the nature of its components, flowing water and the material of the building, and their interaction over time.

Phenomenological joints typically abound within works of architecture, as they can be seen to exist at any place where the material and space of the work become configured in response to the presence of some phenomenon of its environment. While the manipulation of natural light and the flow and collection of water are amongst the most common of these situations, there are a great number of other possibilities.

I believe that any situation where a material changes over time in exposure to the air of its environment constitutes a phenomenological joint. The patina that copper takes on over time or the rust and markings that come to decorate the surface of weathering steel serve as examples. A similar example can be found in New York's Folk Art Museum, designed by Todd Williams and Billie Tsien. Exposed to the air and fumes of traffic in city, the cast metal panels of its façade have gradually darkened over time, their surface beginning to demonstrate 'the life of the building in time'.<sup>4</sup> This sort of patina can be seen as the articulation of material and phenomena at the place of their meeting. This place of change marks the locus of interaction between elements of material and air and, in a way, can be seen as a process of gradually binding the work of architecture to the world in which it exists, its specific context, its place, its history.

Thus far I've spoken of phenomena of the world that are, for the most part, naturally occurring, but there are some instances where the presence of a phenomenon as an element of a work of architecture can be more fully under the control of man. At Casa Batlló, designed by

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<sup>4</sup> Moshen Mostafavi and David Leatherbarrow, *On Weathering* (Cambridge: MIT Press, 1993): 103



Figure 5-8. Fireplace at Casa Batlló. Photo by author.



Figure 5-9. Fireplace with seats at Casa Batlló. Photo by author.

Antoni Gaudí, in Barcelona, Spain one can find a fireplace (Figure 5-8). It is not particularly uncommon to find such an element within a dwelling and it can clearly be seen as a joint between the work and the phenomenon of fire. A fireplace is a moment where the work's material has been configured to account specifically for the possibility of the presence of the phenomenon of fire. This component has been made of materials that can withstand and contain the high levels of heat that are generated by fire and it has been designed in such a way that the smoke that fire produces is drawn upwards and out of the building. While these decisions seem like common sense, they are a response to the specific natures of joined components.

Another feature of this scenario, adds to the complexity of the situation. Designed into this moment are two benches, placed in relation to the fireplace, that are meant to provide places to sit for three individuals (figure 5-9). At this place, the configuration of the material and space of the work of architecture not only responds to the presence of an element of phenomenon, but they are also articulated in response to another element - the bodies of its occupants. Here, these seats provide a place for occupants to sit within comfortable range of the fire and one another, the work's material responding to the nature of their presence in much the same way as it might respond to the nature of an element of phenomenon. This introduces what I will suggest is the final of the primary elements from which a work of architecture is composed - the bodies of its occupants themselves.

## CHAPTER 6 CORPOREAL JOINT

I believe that any work of architecture, by its very nature, necessarily involves its occupation by one or more corporeal presences, the bodies of those who inhabit its space. What is architecture for if not to provide places for us, as humans, to dwell? Works of architecture are designed around the scale of our bodies, the size of a door or the proportions of a step testify to this. Buildings are constructed, shaped around the necessities of our activities and designed to house our interactions and institutions. The relationship between architecture and the bodies of its occupants is so central to the very purpose of building that it should not be difficult to accept that the body of an occupant can be considered one of the essential elements of a work of architecture.

Like phenomena, bodily presences differ from material presences in that they are inconstant, moving, and changing. As such, corporeal presences can also be considered as temporal elements rather than physical ones. Accepting this, one might wonder: 'why and how might a joint be made between a work of architecture and the body of an occupant?'

As with any of the other typologies of joint that I've addressed, the production of corporeal joints is often implicit in the creation of a work of architecture. It can be seen to occur at a place of touching and connection between the body and the other elements of the work. As with phenomena, however, one's body might come to touch a work of architecture at nearly any place, so there must be some other factor present for one to see a joint as being formed between one's body and the work. What might this factor be? The answer to this question can, again, be found through the application of the concept of articulation.

The formation of a corporeal joint, a joint between one's body and a work of architecture, depends upon the shaping and interrelation of its components at the locus of the joint. In a sense,

other elements become configured in response to the presence of the body. At the place of touching and interaction between the body and these elements they become articulated to receive one another. A doorknob grasped within a hand, or a seat, built into a wall, which might hold one's body within it are moments where the material of the work has been configured to foster such an interaction with one's body. Moments such as these are designed as specific places where body and architecture are intended to touch and become united, effectively becoming joined.

Here, the sense in which I'm speaking of body and material being joined is different than the sense that I've spoken of materials being joined to one another, for it is not typically the purpose of a corporeal joint to bind its components together in a more-or-less permanent union. Rather, this typology of joint involves a temporary interrelation or interaction between the body and the other elements of the work at the locus of joining. Despite its temporal nature, however, a corporeal joint has an aspect of greater permanence which can be found in the lasting effect that its purpose has on the particular configuration that the work's material takes. Because of its explicit relationship to the body, the material components of a corporeal joint will tend to directly relate to the body in form, scale, and placement. When one sees the handle on a door, from its configuration in relation to the door and one's body, one might come to understand its purpose. As such, these material components will often communicate their purpose to an occupant as, through their perception, they "project possibilities for action."<sup>1</sup> As the question of purpose in relation to a corporeal joint will vary from instance to instance I'll soon address it at greater depth through some specific examples.

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<sup>1</sup> Robert Morris, *Continuous Project Altered Daily* (Cambridge: MIT Press, 1993): 90

As with the other elements of a work of architecture that might be components of a joint, it is helpful for one to have an understanding of what the specific nature of a corporeal presence is in order to properly allow other elements to respond to it. As always, the specific nature of such an element can be thought of in terms of both its physical and perceptual properties.

In speaking of the physical properties of the body, one addresses all aspects that relate to it as little more than a physical thing of flesh and bone. The body, in a general sense, is typically of a size and proportion that is within a given range. The body's physiology and composition are well documented and known and, as a result, one can understand more or less what positions and ranges of movement the body is capable of and comfortable with.

For example, in the case of one's arm, its approximate size can be estimated, while the specific ways that it can move and the limitations inherent in its structure can be understood without great difficulty. In the case of a leg, the depth of a step might be scaled in relation to the approximate size of a foot, and the proportions of its rise to run might be determined by the comfortable range through which one's leg can move. By this same mode of thinking, the handle on a door might be designed to fit well within one's hand and also account for the specific range of movements that one will have to progress through in order to manipulate the door. As everyone has their own body, in time they should come to know the possibilities of its interaction with the world around them; this knowledge is often a matter of experience and common sense. But clearly we, as humans, are much more than simply a physical thing of flesh and bone.

The perceptual properties of the body as an element of a work of architecture account for all of its non-physical aspects - a matter of great complexity. Our bodies, rather than merely being inanimate corpses, are vital things sensing the world around them and carrying this information to a thinking self which processes and responds to stimuli. This aspect of the body

as an element of a work of architecture takes into account all of the things that a given work might make one feel and think.

What does a building make one feel? Some things one feels directly, meaning that they result directly from our sensations. A volume of shadow that one sees, a room's temperature that one feels, a surface's texture that one touches, and the sound of running water that one hears are things that are sensed directly. Other things might be 'felt' in a more indirect way, whereby one senses things which are processed by the mind, consciously or subconsciously, and some feeling or series of thoughts arises within as a result. This includes things such as feeling uneasy about the lack of light in a space, wanting to leave a space because it is uncomfortably hot, marveling at the smoothness of a particular concrete wall's surface texture, or wondering where the sound of running water is coming from.

Essentially, the perceptual properties of an occupant include all of that which is subjective about one's bodily experience. Here, one must account for the influence upon us by things such as history, culture, archetypal meaning, and all those aspects that give context to human experience. I believe that this, the response of a work to the perceptual properties of an occupant, is by far the most complex aspect of the production of a work of architecture, but as a result it holds within it a vast potential for expression. While this explanation does little justice to the full complexity of this matter, I'll delve more deeply into it through an analysis of particular examples.

I've now established some basic ideas about what a corporeal joint might be. I've suggested that such a joint can be seen at a place where other elements become configured in response to the presence of an occupying body so that they become articulated to receive one another at the locus of the joint. Also, critical to the production of a corporeal joint, as with any



Figure 6-1. Carved bench at Grotta Della Sibilla. Photo by author.

typology of joint, are its purpose and its recognition of the specific nature of the components that become joined therein.

Returning, again, to the example of the Grotta della Sibilla, one can find a number of moments that can be seen as corporeal joints. The steps that I mentioned earlier (Figure 4-7) which mediate between differing levels of ground and tunnel, can be seen as such a joint. These steps exist solely for the purpose of providing for the necessities of interaction between the body of an occupant and the material and space of the work. The stone of the work has been carved, configured at this place in response to the possibility of one's desiring to move from one level of ground to another. As such, the steps have been dimensioned to relate to the size of a human foot and the scale of one's step. In being so produced, they project the possibility of one's moving up them or down them, and they are seen as having that potentiality.

Farther along the main tunnel, one can find two benches at the threshold of the chamber of the Sibilla (figure 6-1). Carved from the stone, these two seats were produced primarily for the purpose of providing a place to sit, and they communicate this function through their relationship in form, scale, and placement relative to one's body. One sees the bench and it projects the possibility of one's sitting upon it. Moments such as this are clearly intended as places where the body is to touch and come into contact with the work. At this place of this interrelation, the elements that are made to interact might become bound together through their mutual articulation.

I'd also like to return to the example of Casa Batlló and further discuss the moment that surrounds the fireplace (Figure 5-9), where occupant's bodies are brought into a particular relation to material, space, and phenomenon. To begin, one might consider the particular way that the material of the bench has been configured in response to a body that might sit upon it.

These seats have been given a highly 'organic' form. Devoid of hard edges, they consist of a soft, gradual curve that conforms to the back of one's knees, one's underside as one sits upon it, and to the slope of one's back from rear to neck. This particular form conforms to the body of an occupant that sits within it, a response to its physical dimensions and properties.

As this moment has been designed around the presence of three individuals, it has been scaled to the particular size of their bodies, providing enough space for them to sit in a comfortable relation to one another and to the fire around which they are gathered. This constitutes a response to both the physical the perceptual properties of the occupants as it accounts for the dimensions and shapes of their bodies as well as the particular social conventions and interactions at work, giving these things form through the configuration of the elements that are joined at this place. Clearly this is not the way that all fireplaces are produced, and this particular configuration can be seen to express these ideas about the specific relationship between the elements that here become joined.

A similar mode of joining can be found at work elsewhere in Casa Batlló and also in Casa Milá, another building designed by Antoni Gaudí that is also located in Barcelona, Spain. Here, the handles on doors and windows (Figures 6-2, 6-3) are of particular interest. As I've mentioned before, moments such as these, where the body is intended to touch and interact with other elements of the work, can be seen as corporeal joints. Beyond this, these moments are of interest because the handles' material has been configured in a very particular way that deviates from standard practice.

The door and window handles throughout these two works have been designed by the architect, deviating from the normal situation of using a more standard, often mass-produced, product. These moments are of interest because their form can be seen to result from the specific



Figure 6-2. Handle on window at Casa Batlló. Photo by author.



Figure 6-3. Handle on door at Casa Batlló. Photo by author.

factors of material and body that are at work at the locus of the joint. Each of these handles, produced from cast bronze, seems to have been molded from the grip of a hand and formed to correspond with the specific type of movement needed to operate the door or window. A handle that you must turn and pull on door or window that swings (Figure 6-4) is different from that on one that slides (Figure 6-5), with the difference in form reflecting the different requirements for manipulating the door or window it is attached to. As a joint, the articulation of material here clearly responds to its function as a means of operating a door or window, but it also serves as a demonstration of the specific nature of the other components that are joined therein - the door itself, the handle, and the hand and body of an occupant.

Each of these pieces of hardware is produced from cast bronze, and its form reflects this. Molten bronze can be poured into a complex mold and, when it cools and hardens, it will have taken the shape of whatever void that it was poured into. In this case, the unusual form that the handle takes is made possible by, and thus serves as a demonstration of, the specific nature of bronze as a material. Additionally, by utilizing this property of the material, the handle is made to respond to the specific nature of the body of an occupant, being formed to fit the shape and contour of a hand and the type of movement that is required in each particular situation.

In perceiving and contemplating these corporeal joints in the work of Gaudí, it is possible that the ideas that were responsible for their production may gradually become revealed. Clearly, they constitute the embodiment of a particular set of concerns regarding the relationship between the body and a work of architecture. They respond to the particulars of the body as it occupies and interacts with the work, a sensibility that resonates throughout, leaving an imprint of the specific nature of a corporeal presence on the material of the work and having a lasting effect on the configuration on the joint's form. In each of these cases, articulation is at work and



Figure 6-4. Handle on a swinging window at Casa Batlló. Photo by author.



Figure 6-5. Handle on a sliding door at Casa Batlló. Photo by author.

the joint takes on the ability to communicate aspects of the specific nature of its components to those who wish to consider it.

Earlier I spoke of a stair as another example of a corporeal joint. Stairs of interest can be found in many works by the architect Carlo Scarpa. Here, I'd like to address three such examples from the Museo di Castelvecchio, the Negozio Olivetti, and the Fondazione Querini Stampalia.

At the Museo di Castelvecchio, located in Verona, Italy, I'd like to draw attention to one particular stair that has been designed to provide access to the building's battlements (Figure 6-6). This stair is part of the architect's intervention into a very old, preexisting building, and it is, by no means, of primary importance in the design of the museum. However, it is of interest because it constitutes a very clear response to the elements that it serves to join.

In this situation the amount of height that needed to be negotiated by the stair was greater than could be provided for with the rise to run ratio of typical stairs. Essentially this situation required a stair that would be substantially steeper than usual. If the rise per step were increased to accommodate this situation, and the stair were of the usual form, it would be of an uncomfortable scale for one to ascend or descend. It would, perhaps, even be dangerous. If the run of each step were decreased to accommodate it, one might have trouble placing one's foot securely on a step, amounting to a similarly uncomfortable and unsafe situation.

To solve these problems the architect designed a stair that differs from the usual stair. Here, within the width of a single step, the architect has placed two, one atop the other with the vertical surface at which they meet being angled so as not to catch one's foot. The use of an angled surface at their place of meeting is made in response to the mechanics of the body as it ascends or descends such a stair. The step at the very base of the stair extends from the concrete mass of the rest of the stair, floating above the floor and lengthening the stair's overall run



Figure 6-6. Stair at Castelvecchio. Photo by Jamee Kominsky.

slightly without substantially increasing the space that it occupies. In order to serve its dual purposes of connection, this particular stair was configured in response to the nature of the things that it connects - the relationship between the differing floor levels of two spaces and the body of an occupant.

At the *Negozio Olivetti*, located in Venice, Italy, one can find another stair of interest (Figure 6-7). Here, a stair that is produced from blocks of solid stone is made to serve multiple purposes. As with most stairs, its primary function is to connect two different floor levels for the passage of an occupant from one to another. In addition to this, however, projections from the stair serve to provide shelves for the display of objects. Because of the limited space within the showroom this element has been made to serve multiple functions which become connected through it.

In one sense, the material of the stair is configured to respond to the presence of an occupant by addressing its scale and the necessities of its movement. Here the relative proportion of a step's rise and run is comparable to that of a normal stair which provides a direct, but comfortable transition between floor levels. In another sense, the stair also provides for the display of objects along its side. As the function of this particular work of architecture was originally that of a showroom for commercial products, the stair has been designed to relate to this purpose by itself, displaying items. These objects are provided with a sturdy series of shelves that can support the necessary weight and are located at appropriate places and scales in relation to the occupants who are meant to view them.

Here, the stair can be seen as the place of joining between the materials of the work itself, the objects that are displayed, and the bodies of its occupants. The properties of each of the



Figure 6-7. Stair at the Negozio Olivetti. Photo by author.

elements that are here joined have been accounted for and responded to, with the material of the stair giving form to this response.

Finally, the particular stair that I wish to consider at the Fondazione Querini Stampalia, also located in Venice, can be seen as an example of a joint that begins to take on a very high level of complexity. One of the most traditionally important entries to the Fondazione fronts on a canal (Figure 6-8). This threshold, between the space of the exterior and that of the interior, was meant to provide access to those who might arrive by boat, a common and traditional mode of transportation in the city. The entry itself is blocked by a pair of operable gates, and inside a series of steps rise within a coped basin from the level of the canal's water to the top of the coping. The primary purpose of this moment is to provide for one's physical passage from the water to the higher floor level of the interior, but it has been shaped in response to other factors as well.

The rising and falling of the water level as the tide comes and goes in Venice, being a city of many canals, is one of the things that defines it as a place. The rising of the water level and periodic flooding that comes with it are, for the most part, inevitable occurrences. On a fundamental level, the configuration of the basin provides for the control of water and prevention of its flooding the interior, but in its mode of doing so it celebrates it and reveals its very nature.

Throughout the day, the water level of the canal is in a constant state of flux. As the canal's water level rises, the water begins to move through the porous gates and into the basin from which the steps ascend. The level of the basin's bottom is varied so that, as the rising water gradually fills its different levels, the relationship between water, basin, and stair progresses through a series of phases (Figure 6-9). When the tide reaches its greatest height, the water comes to surround the steps, they seem to rise from its depths and are rendered distinct from the



Figure 6-8. Stair at the Querini Stampalia in Venice. Photo by author.



Figure 6-9. Varied water levels throughout the day. Photos by author.

edge of the basin to which they run parallel. Eventually, as the tide goes and the water level falls, the basin's bottom is again revealed, traces of wetness left upon it by the movement of water over the passage of time. In a way this moment serves as a marker, an indicator of the past, current, and possible states of affairs between the architecture and its context at this particular moment, demonstrating the nature of its components through their configuration at the locus of joining. But still, the primary purpose of this moment where material, space, phenomenon and body become interrelated is to provide for one's physical passage from canal to interior.

Entering from the canal, one steps upon the stair. Aligned along the length of the basin, its series of irregular steps create a procession across the width of the space, traversing the basin. Upon reaching the appropriate height, one turns as the stair meets the edge of the coping which pulls towards the stair, creating an inset in the coping's edge for one to step down to the main floor of the entry space.

As a corporeal joint, this moment responds in form to the physical properties of the body in its scale, dimension, and orientation to serve its purpose as an element of bodily interaction. Additionally, it has been configured so that through one's occupation and perception of this particular place one finds the possibility of growing more acutely aware of the nature of all of the elements that here become joined. As one occupies this complex joint between interior and exterior, material and phenomenon, architecture and context, in a way, it can be said to express the nature of all of these things at the particular time and the specific place that they become united. If one can 'read' a joint in such a manner as I have here, and it can be said to communicate in such a way, what else might the joint be made to say?

## CHAPTER 7 COMPLEXITIES

I've now described the concept of joining as it can be applied to a work of architecture in significant depth. While the making of joints is most often thought of in relation to the connection of materials, clearly it can also have important implications in its application to the forming of connections between other elements from which a work of architecture is composed.

Additionally, I've developed a particular mode of analysis through which to see and to think about the act of joining. This 'analytical lens' consists of seeking to understand the specific nature of the things that are joined and the relationship between their nature and the purpose that the joint will serve. I've also shown that, in response to these things, components are often articulated at the locus of their joining so they become bound together by virtue of their relative form. And, finally, I've suggested that the joint, beyond its mere connective function, can come to serve other, demonstrative, aesthetic and communicative functions as well.

I've approached my analysis of the joint between these four primary elements of a work of architecture by addressing each typology of joint individually. However, it should become increasingly clear that, in reality, they cannot always be easily separated from one another and that they rarely occur in isolation. In their application to a work of architecture, it is often the case that each of these distinct typologies of joint - material, spatial, phenomenological, and corporeal - may be present at one place. This is so in the example of the stair at the Fondazione Querini Stampalia. In circumstances such as this, the joint takes on a level of increasing complexity as it responds to the nature of each of these things, all of the elements from which architecture is composed, and they become intertwined and interrelated at its locus.

In my use of examples, I've typically progressed from those that are more commonplace, simply a window or a door handle, to the highly particular, as in the case of specific moments

within notable works of architecture such as the Thermal Baths at Vals and Casa Batlló. The more basic and fundamental examples served to illustrate the essential concept of a particular joint typology. The more complex examples served to show that the joint can not only connect things, but communicate aspects of their nature as well. This distinction between the commonplace and the particular is an important one, and should be elaborated a bit more upon.

Often, the form that a joint takes within a work of architecture is a matter of standard practice. Things such as windows and door handles often possess a 'normal' form, one that is a matter of the standard sizes and shapes that are readily available. Furthermore, such things are typically placed in 'normal' ways, the usual locations where standards dictate that they should be, because it is the common and familiar placement for such a thing. Similarly, connections between wooden components, for example, are often made in relatively standardized ways that tend to be the most economical in terms of the expenditure of both time and energy. This same idea applies to the joint between spaces such as kitchens and dining rooms which are often joined in the ways that one thinks that they 'should be' as one understands it from one's past experience of similar, commonly occurring relationships.

When things are joined in ways that are a matter of standard practice, presenting themselves as common, they may sometimes be less worthy of contemplation than instances that deviate from what is normal. When one encounters an instance of joining that has been done in the usually way, one might pass by it without giving it a moment's consideration because it is the standard way of doing such a thing, it is normal and familiar. One rarely pauses to contemplate what is normal and familiar to one's experience.

On the other hand, when the method of joining begins to deviate from what is standard, it creates within the work a moment of exception or distinction. As a joint distinguishes itself in

such a way, it may be the case that it becomes increasingly worthy of contemplation. Deviating from what is normal, a thing thrusts itself into our attention, and one wonders why it was done in such a way. As I've previously stated, in contemplating the form that a particular connection has taken, it may be the case that some bit of knowledge or a deeper understanding of the work in question is gradually revealed.

This is not to suggest that things should be done differently simply for the sake of being different. For deviations from normal practices to be meaningful they must have a point that emerges from the purpose of a joint, its context, and the nature things joined. In the understanding we thereby develop of the possibilities of the particular configuration of the components of a joint, one finds the potential to express the nature of the joined components and the complex of interactions that occur between them.

With these thoughts in mind, I'd like to address some examples of works of architecture in which elements of material, space, phenomenon, and body are joined in ways that are not a matter of standard practice. They will illustrate the vast potential of the joint to give form to complex aspects of our architectural experience.

### **A Narrative of Object**

Previously, when speaking of the joint between materials, I discussed the example of the Hedmark Museum, designed by Sverre Fehn. This museum, constructed atop the ruins of an old farmhouse, holds within it a variety of objects that were both found on site and procured from elsewhere, but that remain from the period of the dwelling's original occupation. Returning to the example that I spoke of earlier, the display of a number of glass objects, it can now be seen in a different light. Here, various glass household vessels, over a hundred years old, are held within



Figure 7-1. Detail of glass display. Photo by Author.



Figure 7-2. Detail of glass display. Photo by author.

the space of a window (Figures 3-10, 7-1, 7-2). Previously, I spoke of this moment in terms of its being a material joint, as it constitutes a connection between the objects' material and that of the work of architecture. While I'll first speak a bit more on the particular significance of the relationships between its materials and its mode of construction, it will be clear that this moment can be seen as much more than simply a collection of material joints.

Within the space of the window, a shelf of glass, thick relative to the material of the objects, is held between two metal brackets that are set into the mortar of the wall's brick masonry. Delicately touching the shelf, yet wrapping itself around it, each bracket opens at the locus of the joint, demonstrating the thinness of the metal which easily supports the thick, weighty plane of glass. The glass itself, by virtue of its thickness, is able to remain ridged and support the weight of the objects and case that bear down upon it. The top portion of the display case is comprised of a series of glass planes, fixed together with an adhesive, as can effectively be done with components of glass. The top portion of the case rests upon the beveled edge of the shelf beneath, articulated to respond to the precise angle of the top's components, and passes just beyond their place of meeting. This overlap of components, along with number of metal weights, serves to secure the top portion of the display in place. From these metal weights, cast to fit the precise angle of the joint upon which it sits, a rod extends downward fitting snugly into a hole that has been drilled into the shelf, binding the whole assembly together. Here the connection between materials, which provides a clear demonstration of the nature of its components, is made to define a space within it, displaying the objects that it holds within the void of a material joint. Beyond this, the whole assembly of materials and objects has been placed within the space of a window, cast in natural light.

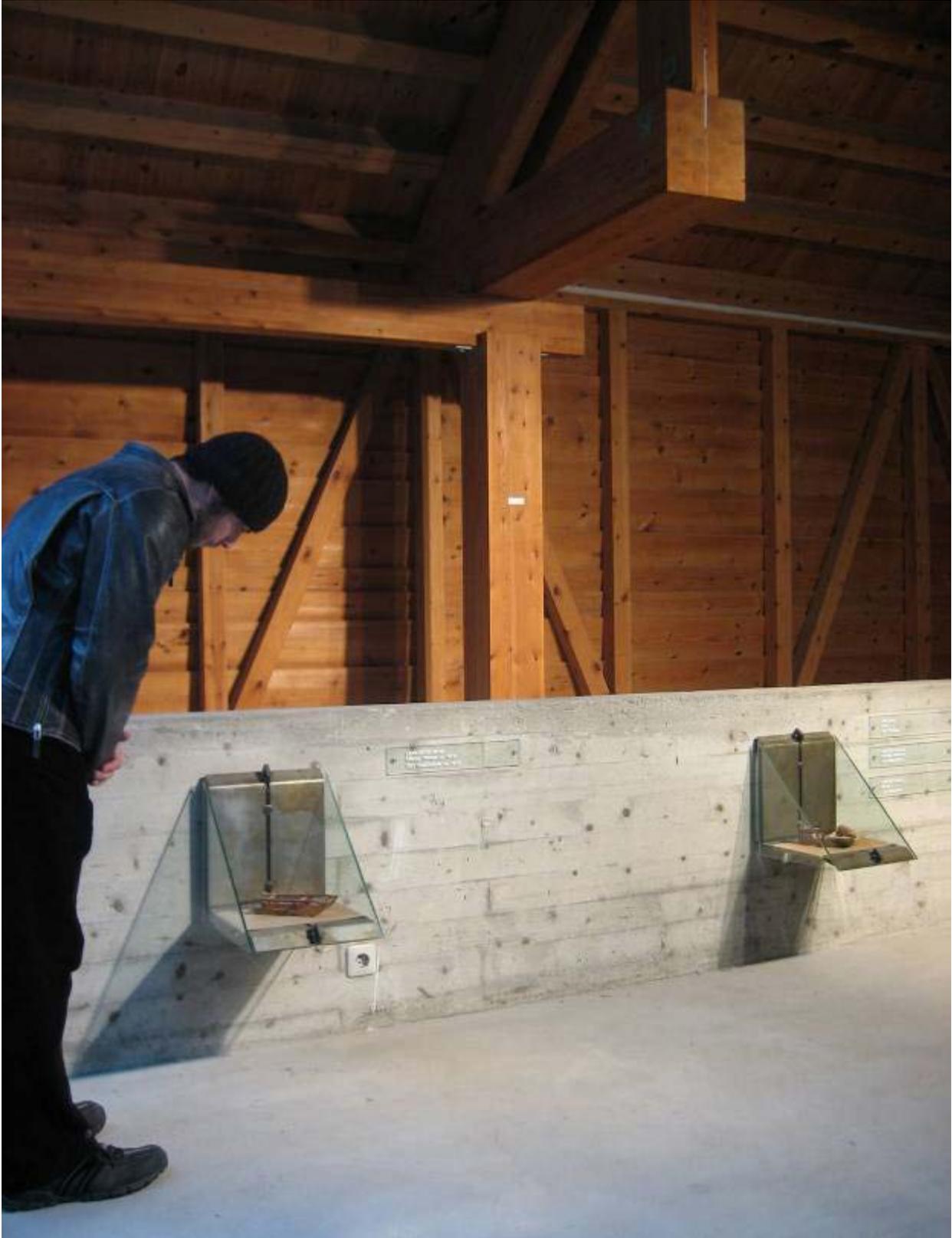


Figure 7-3. Display of children's toys. Photo by author.

Held within the light that passes from exterior to interior, the translucency of the object's material is made apparent, yet set into contrast with that of the display case itself. The delicate thinness and irregularly surfaced aspects of the objects are set apart from the transparent, flat, and regular surfaces of the case's material, drawing one's focus to the items that are displayed. In a way, atop the shelf they seem to float and become weightless and ever more delicate. Upon the glass beneath them their image is reflected, a phenomenon of the interaction between light and material, and from the raised vantage that one views this situation, one is offered a second, ghostly view of each object, further enhancing their ephemerality. Seeing the chipped edge of one of vessel, it may even strike one that, while they seem so light and fragile, these objects have somehow persisted through time, continuing to endure its passage long after the hands that crafted and held them have ceased to be. This is the nature of such an object, and the story that it can be made to tell.

We can find similar principles at work elsewhere in this museum where, at another moment, a series of children's toys are presented for display (Figure 7-3). These particular objects are displayed within cases of steel, glass, and leather that are placed, in relation to one's body, so that they are viewed from above. As with the previous example, this particular joint, when 'read' in a similar way, can be seen to communicate much about the nature of its components.

Like the last example, this case, composed primarily of steel and glass, consists of a play between these two materials that, again, demonstrates their properties (Figures 7-4, 7-5, 7-6). The case is structured with a sheet of steel, folded in such a way as to provide for the satisfaction of both functional and aesthetic concerns. The sheet of steel is bent into an 'L' shape so that one portion of it can be held parallel to the wall for fastening, while the other portion provides for a



Figure 7-4. Display of a child's toy. Photo by author.



Figure 7-5. Elevation view of display. Photo by author.



Figure 7-6. Details of display case. Photos by author.

surface on which to place an object. Additionally, the two ends of the steel component are again folded so that they provide for the even support of the glass that is placed atop it. Steel is a very malleable material that, even when bent, exhibits a relatively high level of structural strength. As such, this particular use of steel is in clear alignment with its specific material nature.

A volume, defined by three panes of glass that are connected with an adhesive, sits atop the fold of steel. The glass is held in place by virtue of a series of overlaps, along the sides and ends of the steel component, and two slots cut in it to fit securely around brackets, welded at the top and bottom of the steel fold. Finally, to lock the glass volume in place, small pins are slid through each of the brackets. As in the previous example, here the object is effectively held within the joint between these materials.

Around the steel fold, lining the surface upon which the actual object sits is a section of flesh-colored leather (Figure 7-7). The leather has been wrapped around the steel and, beneath the display, has been laced together in a way that leather specifically can. In its use of materials, the display case can be said to clearly express their nature through its mode of construction. But it is not the primary purpose of this scenario to communicate ideas about the nature of its materials, rather it is the purpose of this moment to display and communicate the nature of the objects that are held within it. How might it communicate the nature of the objects within it, and what might it have to 'say'?

To begin, one might consider the relationship that the viewer and the object are set into. Placed at the height of one's knees, one is made to view these toys from above. Seeing these objects from this vantage is like the view one might come to have of a child at play, recalling through the particular relationship of object to body, the scale of the setting in which these objects might have long ago been found at use. One might then consider the choice to place



Figure 7-7. Detail of display case. Photo by author.

these objects upon a piece of flesh-colored leather. Such objects as these, children's toys, have a particularly intimate relationship to the body. When played with by a child, they are held, touched, and manipulated - in close contact with the skin of one's hands. Here, the leather recalls this relationship - literally displaying objects upon skin, invoking a remembrance of the long lost touch of human hands to which these material things might have been dear. At this moment, materials are joined, objects are held within their space, they enter a particular relationship to the body of an occupant, and all together they are cast in light from above. Here, elements are configured to respond to one another in both physical and perceptual terms, joined so that through the particular mode of their union their story might be made to unfold.

It's quite clear that, in both of these instances of display, the specific physical and perceptual properties of the objects, as well as all of the elements that are here joined, were carefully considered. In their consideration, particular decisions were made to configure them so that they become articulated at the locus of the joint, both binding components together and, in the form that the joint has taken, embodying a complex set of ideas about their nature. Through one's contemplation of the form that these moments of display have taken, and the interactions between their elements that are inherent in their being, they are able to take on a narrative quality, telling the story of both the object and the conceptual construction of the moment in which it is held.

### **An Embodiment of Ritual**

Some of the institutions of man<sup>1</sup> involve certain types of repetitious behavior. Some of these activities, through their repetition over the course of time, may be said to become rituals. Such rituals might involve particular processes of interaction between an individual or groups of

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<sup>1</sup> Kahn, Louis I., *Louis Kahn: Conversations with Students* (Princeton: Princeton Architectural Press, 1998)

individuals and elements of material or phenomenon in space. At the place that these interactions occur, architecture can be configured to guide the articulation of the elements that a given ritual involves, binding them together and giving substance to our ways of being and interacting in the world.

At Tapiola Church, designed by Aarno Ruusuvuori and constructed just outside of Helsinki, Finland, one can find many examples of how ritual are expressed through architectural form. Here, the work of architecture has been designed around many such rituals, responding to their presence and guiding the configuration of the work's elements at particular places. Throughout the particular set of complex joints that I will address, a common theme resonates, one that gives expression to aspects of the nature of Lutheran practice in this specific place, and that speaks to the complex relationship between the religious practice of an individual and that of the community.

Finland, being very far north, is a place where the winter is long, cold, and dark. Through the depths of winter, traveling to the church would be an undertaking, a struggle against the harsh climate to join one's peers in worship. Entering the church, one finds oneself in a common space that joins a community center to the church proper. Here, one is greeted by a fireplace within the entry space (Figure 7-8), an offering of warmth and community, welcoming one from a difficult journey.

This particular fireplace is notable because its form and configuration relative to those that might gather around it deviate from standard practice. Often, the standard convention for the production of a fireplace entails its placement within a wall. Placing it in a wall creates a focal point for gathering, the warmth of the fire, which is inherently off-centered in relation to the group. Here, the architect, contrary to this standard practice, has located the fireplace in the



Figure 7-8. Fireplace at Tapilola Church. Photo by author.

of the room and open equally to all sides. In a way, this placement of the fire relative to those who gather around it renders the fire the center of a gathering that privileges no side, one that groups those around it as a community of equals and of central focus.

The communal aspect of this element is heightened by its placement in proximity to, and in view of, the building's main entrance; upon one's arrival, the individual is invited to and accepted as a member of the community. Here, the architecture is made to foster and express the ritual of gathering around fire and has done so as to create an environment of openness and communal spirit. The joint responds to its primary purpose of holding fire, but additionally it is configured so that, through the relationship of the elements that it binds together, it expresses the particular nature of a ritual of gathering in this specific place.

As with nearly any religious institution, Lutheran practice involves the repetition of a number of activities throughout the course of one's practice of worship. At Tapilola Church, just as in the previous example of gathering around a fire, many of these activities are 'built in' to the work of architecture itself. In each of these instances, the work's material and space have been configured to join the elements that the practice of each ritual involves, expressing their nature and significance to the practice of worship.

At some point along the path of entry into a Lutheran church, one will usually find a baptismal font where the faithful may touch of the holy water that flows from it. One does this for the purpose of one's own aspersion, sprinkling on or touching the water to their body. Here, this particular ritual of worship is given form as well (Figure 7-9). From the point that one enters the main worship space, one sees the font in the distance, illuminated in natural light that falls from an opening in the shadowy plane of the ceiling. Natural light, both as an archetype and



Figure 7-9. Baptismal font at Tapiola church. Photo by author.



Figure 7-10. Detail of baptismal font. Photo by author.

throughout its history, has often been thought of as being of or close to God. Its presence here creates a focus upon this moment, drawing one's attention to it and conveying its importance.

The font itself, a monolithic piece of stone with a depression carved into its top, holds a small pool of holy water within it. From a small brass opening in the bottom of the depression, the water flows continuously, constantly renewing the water that one is to touch. As it fills, the pool perpetually runs over, water flowing down a vertical channel carved into the back of the font, to be collected beneath (Figure 7-10). The water flows over the passage of time, rejuvenating and cleansing those that touch of it, and then returning to its source. Through this process, the font is made to express many of the sentiments which its ritual is intended to embody.

Additionally, because this moment exists solely for the purpose of one's interacting with it, one can expect that the configuration of its material, and all of the elements that are here united, would respond to one's body. To begin, the space in which one finds the font, while directly connected to the main space of worship, has a lower ceiling height than the adjacent, primary space. This perceived difference serves to maintain a more intimate, personal scale to one's direct interaction with the baptismal font. However, because of its placement at the far end of the space, one's approach to the font requires one to walk nearly the full length of the worship space to reach it. While the scale of one's interaction with the font remains at a personal level, one's movement towards it constitutes a procession within view the congregation, a reconnection to the communal.

The stone of the font itself has also been dimensioned in relation to one's body. Its top is low enough that one might look down upon it and see the pool of holy water atop it. At the same time, however, it is high enough that it both reinforces its importance and holds the water within

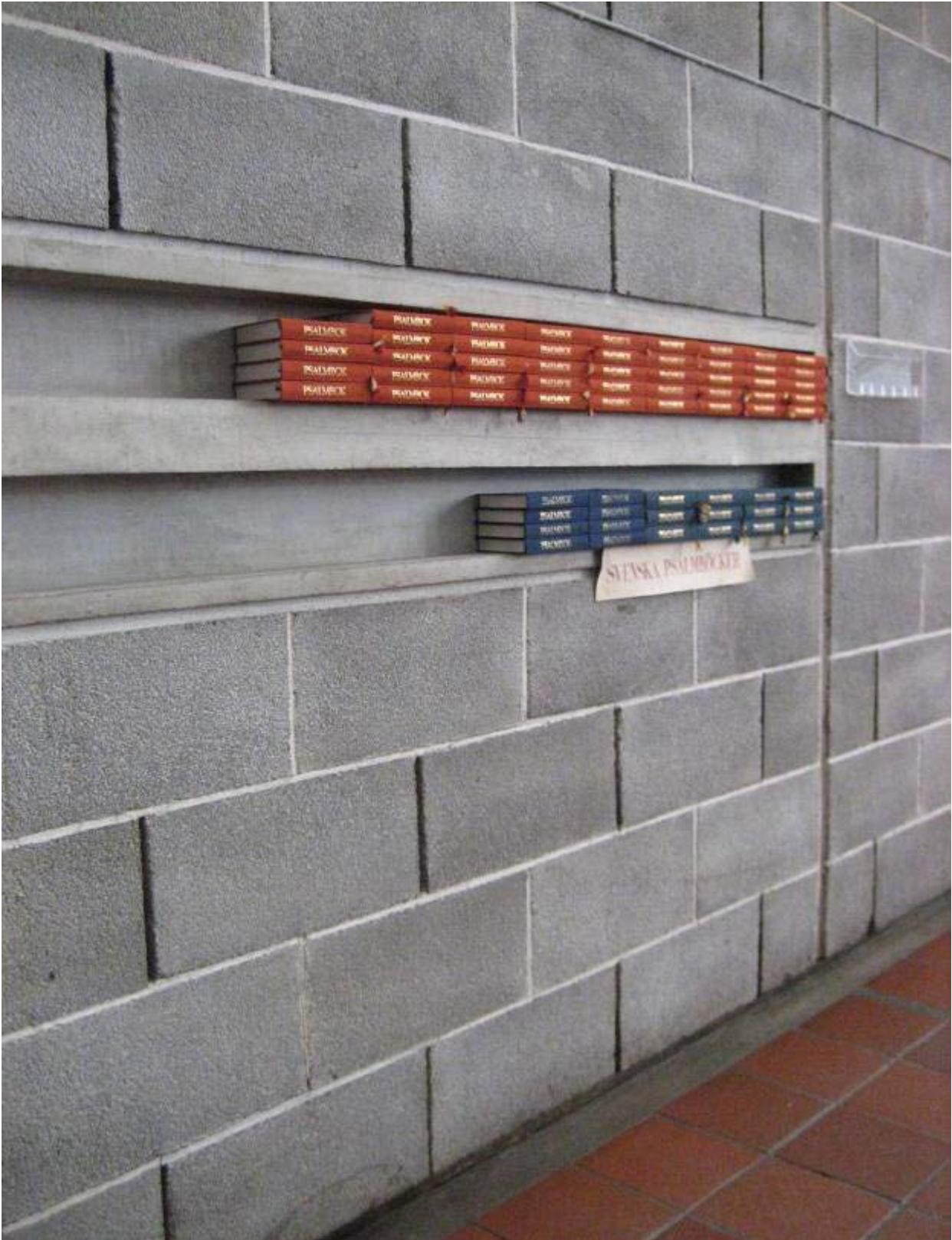


Figure 7-11. Hollow within wall for holding psalm books. Photo by author.

comfortable range of one's touch. Beyond these responses to one's physical properties, this joint between one's body, material, water, and natural light also possesses the ability to convey the perceptual aspects of its elements, in all of the ways that I've discussed above.

At the same point of entry to the worship space that I've described in relation to the baptismal font, one can find another moment of interest (Figure 7-11). Here, one finds a pair of hollows within the material of the wall, designed to hold psalm books for worshipers to take before sitting for a service.

Set within the wall, a component of cast concrete has been designed to hold these books within it. The hollows within this concrete piece have been produced to respond to the particular scale of the psalm books that it's intended to hold. The insets have been designed to provide space for five books to be stacked atop one another, leaving only a small amount of space left over so that books might be easily be removed and returned to their place. Additionally, the depth of these insets has been designed to be slightly less than that of the books that are placed within it. This results in the slight overhang of the psalm books from their space within the wall, allowing for them to be more easily removed from or placed within the wall by hand. Had the insets been made deeper, the removal of a book would have become more difficult. Had the insets been made much shallower, the books would not have been held as securely within the concrete's void.

As with the case of the other rituals that I've addressed here, this moment also can be seen to express some aspects of the communal spirit of the congregation. Here, as with the previous example, one finds a place whereby all those who come to touch it become, in a way connected. Through the ritual of taking a psalm book, reading from it during one's worship, and returning it at the service's end this moment can be seen as a joint between all those who interact with it. As



Figure 7-12. Pastor's personal chamber. Photo by author.



Figure 7-13. Pastor's personal chamber. Photo by author.



Figure 7-14. Detail of Pastor's personal chamber. Photo by author.

a result, the changing state of affairs, from removal to return, between the wall and the books that it holds comes to be a reflection, of sorts, of the interaction between the congregation and it.

The final moment that I wish to address within Tapiola Church is that of the Pastor's personal chamber, where he makes preparations for services (Figures 7-12, 7-13, 7-14). At this place, the work of architecture is shaped and molded by the rituals that he performs through the course of his preparations. Much as the other instances of this process that I've described, at this place the joint becomes charged with multiple layers of meaning and significance.

To the side of the chamber, a glass case holds and displays the pastor's ceremonial garb, both giving it a place of respect and serving as a constant reminder, through its perpetual visibility, of the responsibility that he serves. Reflected in the glass of the case, a large cross sits upon the wall adjacent to it. Here, before the cross the pastor might pray. At the opposite side of the chamber from the glass case, natural light falls from an opening above, much like it does above the baptismal font. Again, the light expresses the presence of God. Here, one finds a small concrete shelf projecting from the wall, yet of a single piece with it, and another cross, pulled away from the wall so as to cast its shadow beneath it. To this place the pastor might carry his bible into the light to read from it, an act of both physical and spiritual illumination. Facing the wall, nothing in his view save bible and cross, he might engage his task with complete focus, wholly absorbed by his faith and duty.

Each of these examples, viewed through the analytical lens that has here been developed, constitutes a joint in multiple respects. All of these places have been made to not only respond to the physical properties of their elements, but have been made connect to complex perceptual aspects of each of the processes of interaction that takes place therein. Through the configuration of the work of architecture, and the articulation of its elements at the locus of the

joint, these rituals of religious practice have been given concrete form within the space of the world.

### **Poetics of Experience**

Returning to the example of Carlo Scarpa's Brion Family Cemetery (Figure 3-12), which I've spoken of earlier in terms of the joint between complex material components, I'd now like to examine it more closely. This family cemetery contains tombs for the matriarch and patriarch of the Brion family, the graves of numerous other family members, a small chapel, and a meditation pavilion. A program such as this, a cemetery or tomb, is an inherently complex thing. As it is centered on the occurrence of death, it touches upon the depths of our worldly experience, connecting to one of the few inevitable aspects of our lives that we all, as human beings, share. Additionally, because the tomb is dedicated to a particular family and designed primarily around the tomb of its matriarch and patriarch, it addresses also another constant of the human condition, the relationship between man and woman. Thus we have the beginning, the end, and the continuation of life. These two themes resonate throughout the work, embodied in the relationships that the elements of the work have been set into. Here, in one's perception and contemplation of the work, a sort of reading through experience, the joint can be seen to communicate the architect's thoughts on the nature these fundamental aspects of our being.

Upon one's approach to the cemetery, framed within the space of the entry component, one sees an opening that has taken the form of two interlocking circles, one blue and one other red (Figure 7-15). These shapes and the relationship between them serve as a symbol of the joining of man and woman, the linking together of their lives, and this element introduces one of the work's recurrent themes. Just beyond the symbolic opening, one finds a channel of flowing water, the element joining three of the main components of the cemetery through their mutual relationship to it. To one's left, one finds the way to the arcosolium (Figure 7-16), which



Figure 7-15. View through the entry component. Photo by author.



Figure 7-16. View of the Arcosolium from the entry component. Photo by author.

contains the primary tomb of the cemetery. To one's right, one finds a path that leads to a meditation pavilion within the center of a pool of water.

The arcosolium component consists of the sarcophagi of the family's matriarch and patriarch, placed in the center of a depression within the ground and sheltered beneath a large arc of concrete, stone, and tile. From the edge of the depression a series of steps lead up to slightly higher ground and to a pair of concrete cylinders (Figure 7-17). From one of these, water flows, as if to recall the flow of life, the source family in the union of the man and woman who are here entombed. From its origin, the water moves along a path, touching upon the entry component, and coming to fill a large pool at its end (Figure 7-18), suggesting both the growth of their lives within their offspring and their eventual collection upon death. This introduces a third, recurring theme: the nature of the flow of life over the passage of time and all of the associations that it involves.

Following the water's path from the arcosolium, through the entry component, to the meditation pavilion beyond, one's experience of material, space, and phenomena further expresses the nature of this place and the elements that are here united. When one crosses the point of entry, the sound of one's footsteps begins to change. One progresses from solid ground to hollow, the sound of each step echoing within the space beneath. Ahead one sees a threshold from darkness to light, suggesting an image of the passage from death to beyond, but one finds one's way is blocked by a partition of glass (Figure 7-19). Here the partition must be pushed down into the floor to allow for one to pass. Once through, one allows the glass partition to gently glide back into place and, seeing water running down the glass' surface (Figure 7-20), realizes that water lies within the hollow beneath. In moving through this moment, one's interaction with the material of the work



Figure 7-17. Water flowing from the Arcosolium. Photo by author.



Figure 7-18. Water flowing past the entry component. Photo by author.



Figure 7-19. Threshold with glass partition. Photo by author.



Figure 7-20. Water running down the surface of the glass partition. Photo by author.



Figure 7-21. View of meditation pavilion with reflection. Photo by author.



Figure 7-22. Framed view of Arcosolium. Photo by author.

deposits a trace of one's passage, leaving a mark behind which, not unlike the traces of one's passage through life, begins to fade as one takes leave.

From here, a path extends into the pool of water, turns to the left, and leads one into a small pavilion (Figure 7-21). This place, both connected to the rest of the work and isolated from it through its relationship to water, serves as a place of reflection, in multiple senses. Here, one views the arcosolium, and the sequence that unfolds from it, across the pool of collected water in which the world is reflected, mirrored by the water's surface. In another sense, one is meant to reflect upon the nature of all of these things that have here been united; this is a place of contemplation where one might ponder the nature of life as expressed by the work and the relationships between its elements.

Standing here, at this moment of reflection one finds yet another joint of significance. At eye level, a piece of cast brass serves to join the wooden components of the pavilions cover. Within it, the space of two interlocked circles is defined, recalling and reconnecting to one of the work's central themes. As one looks through this joint in materials, the two primary tombs are framed within ones view (Figure 7-22). Symbol within symbol, here a connection is forged between beginning and end, life and death. Through the relationship between material, space, phenomena, and one's body, an analogical circle is completed across a distance, expressing all of these aspects of the nature of human life.

All of these things can be interpreted through one's experience of the work, its elements configured and joined to one another through their mutual articulation, which holds within it the possibility of expressing and communicating this particular set of ideas about the nature of our being. One's experience of this place is charged with the potential to express the nature of some

of the most fundamental dualities of human existence: man and woman, body and spirit, life and death.

### **Possibilities and Potentialities**

In each of the three projects that I've just discussed, it should be clear that, more than simply serving to connect the work's elements, the joint possesses a great potential for expression. My discussion of this idea in relation to these projects is by no means exhaustive. Much more can be read in these examples than I've discussed, and the moments within these projects that I have discussed are just a few amongst many. My brief analysis of these things has been intended to suggest that, within the joint, the potential for the communication of meaning *does exist* and to illustrate how a joint might be made to become a vehicle for such expression.

In the end, what I've described here in a multiplicity of ways is some portion of what I believe to be the essence of what one might call 'architectural detail'. As I've mentioned previously, the use of the word 'detail' raises a number of difficulties that I wished to avoid by speaking of it in terms of the 'joint', which I believe is the conception of 'detail' that holds the greatest value in the production and perception of a work of architecture.

It's not difficult to compress all that I've said here into a paragraph. I've suggested that architecture is constituted from the union of its most basic elements - its physical materials, the space within and around it, the phenomena that it engages, and the bodies of its occupants. Any of these things has a specific nature, and it is important that one always seek to understand it as deeply as possible. Through such an understanding one grows increasingly able to connect these elements so that the joint between them might effectively serve its purpose, a thing that might range from mere physical connection to the expression of profoundly complex thoughts and feelings. In a way, I believe that to say these things is to state the obvious, but stating something

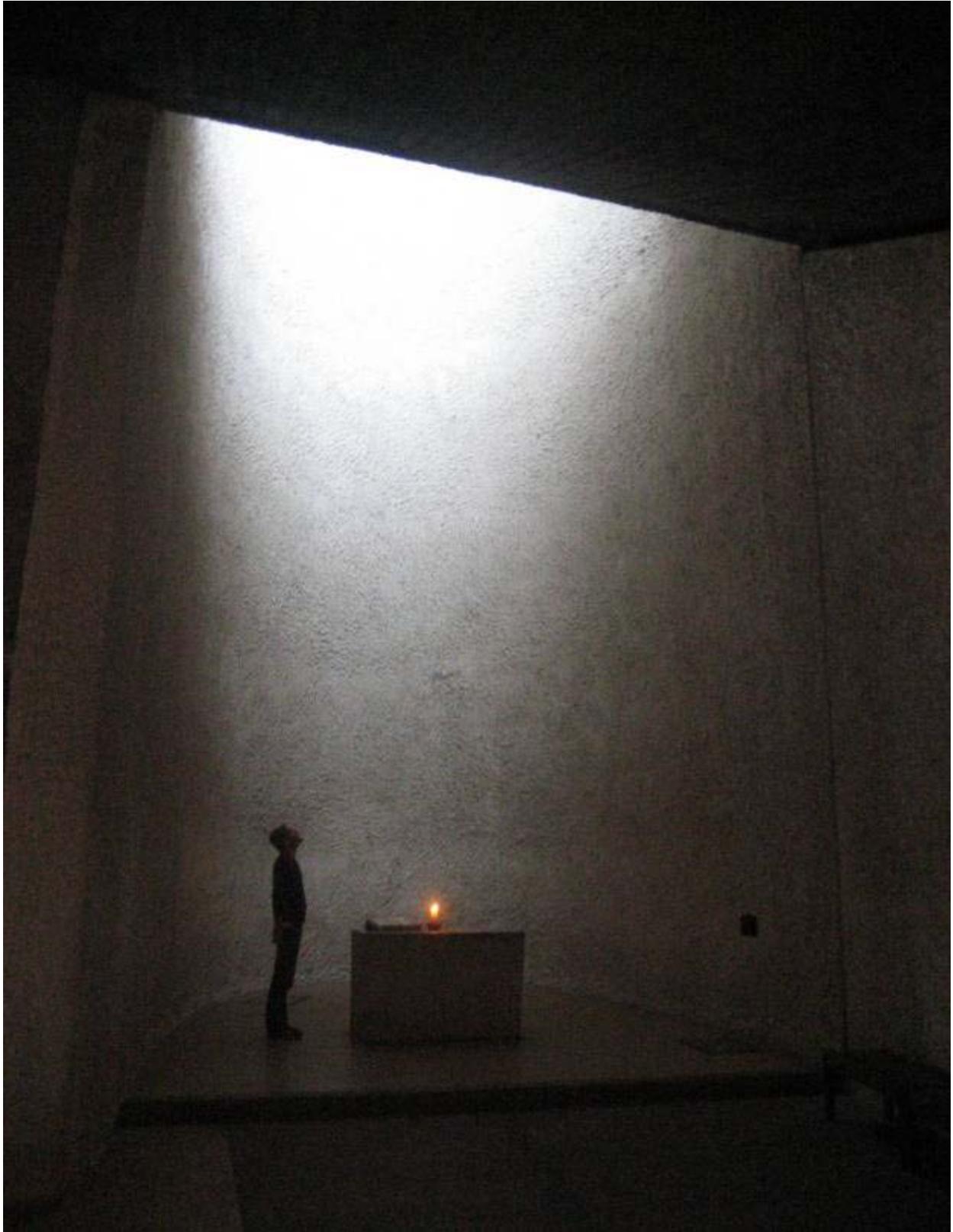


Figure 7-23. View of side chapel at Ronchamp. Photo by author.

obvious clearly can provides a context for seeing what is less obvious, making it more readily perceptible and understandable.

What I've done here is outline *one particular way* of seeing and thinking about the role of the joint, in a greatly expanded sense, in both the production and analysis of a work of architecture. I believe that this constitutes a very open-ended system of analysis, an analytical lens of sorts, which can be adapted to any viewpoint or set of beliefs that one might hold in relation to architecture. I think that its basic tenants are valid and important: that in the production of architecture one should seek to know and understand the specific nature of all of the things with which one deals, and that in bringing these things together one should aim to understand the relationship between their natures, the purpose of their joining, and all of the implications of their union, in great depth. This is effectively to say that in both the production and perception of joints within a work of architecture, one should, at all times, maintain '*an attentive tension toward understanding all that is happening.*'<sup>2</sup>

The examples that I've used to demonstrate this process of thinking and seeing are quite limited, and it is important that one realize that the possibilities for applying these ideas to a work of architecture are virtually endless. Truly, any place within a work of architecture that two things come to touch holds within it this expressive potential. In considering this statement, it is important to remember that 'thing' is intended to mean any element of material, space, phenomenon, or body. The inclusion of any of these things as an element of the work is contingent merely on the consideration of its presence and the production of the work so that its other elements respond to its presence, becoming articulated at the locus of the joint, binding them together.

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<sup>2</sup> Carlo Scarpa as quoted by Frascari, Marco, "The Tell-the-Tale Detail", *VIA7: The Building of Architecture* (1984) 23-27

I believe that the most important application of these ideas lies in the impetus it gives to questioning limits and expanding one's conception of what 'things' one might consider to be elements of a work of architecture. What other phenomena, activities, or interactions might a work of architecture be configured to receive? What about the nature of the elements that these things involve might a joint be made to communicate? What about the depths of human experience might the joint be able to express? It is perhaps here, in one's attempt to answer questions such as these, that the joint finds its greatest value, beyond the mere function of connection, in its ability to become a communicator of meaning, a vehicle for poetic and aesthetic expression, both shaping and being shaped by our ways of dwelling within the world.

## CHAPTER 8 POSTSCRIPT

In the end, the primary purpose of this study is to lay the foundation for a particular pedagogical viewpoint, one that establishes a set of primary principles to serve as a tool for thinking articulately about the production of architecture. The first of these principles is the idea that one might think of a work of architecture as arising from the ordering of relationships between its primary elements – material, space, body and phenomena. The second of these principles is that in ones investigation of any particular element one should seek to understand its specific nature, the summation of its physical and perceptual properties. Third, that joining elements often requires their articulation, a particular process of shaping, at the locus of their joining. The fourth of these principles is that in joining such elements one finds the potential to communicate ideas, for when a joint is produced with particular intentions others are invited to reflect upon the reasons and ideas that have both generated and become embodied within the form of the final product. In the practice of teaching these principles have a number of obvious applications.

First, by the elemental approach, described above briefly and previously at greater depth, a student is given a point from which to begin. It provides a clear way of thinking about the substances, so to speak, from which architecture is hewn. Just as one must understand the nature of individual words before one can put them together to make a sentence, one must also understand the nature of architecture's basic elements before one can combine them in meaningful ways as well. Through this 'elemental approach' students can be led to develop such an understanding.

In the earliest stages of design education one often deals with only two of the four elements described above – material and space, and this is important, for when one deals with

fewer variables it becomes easier for one to understand what it is that one does. For example, students can be taught to articulate the joint between materials and spaces to convey basic ideas. Here, the joint between two spaces might be articulated to convey the idea of expansion or compression and, once one can effectively communicate such an idea through the making of an object, one will be better equipped to similarly address more complex situations. The making of simple joints such as these, based on the principles outlined in this text, can serve as an analogous process to making more complex joints between wider ranges of elements.

In latter stages of design education, once one has a thorough grasp of the basic principles of joint making, elements of body and phenomenon can be introduced. To begin, only the basic physical and perceptual properties of these elements should be explored, gradually delving deeper into the possibilities of their communicative potential and multifold meaning as one gains a more thorough understanding of their nature and the complexities inherent in the production and interpretation of the joint between them.

The final stage of this process to be explored is to examine the potential of the joint as a generative element. While such an application could be employed at any level, it is likely that in order to take advantage of the processes' full potential one must have a truly deep and thorough understanding of all that one engages in the production of such a joint. As a generative element the joint can become a vessel for the ideas of the whole, projecting and extending, growing outward to organize other elements around it and inform the production of the whole.

In conclusion, because of its critical importance to the making of architecture, developing a thorough understanding of the process of joining and the extent of its potential to communicate meaning can serve to guide students in thinking articulately about the production of architecture. As such, this set of ideas and principles, this analytical lens, has vast potential as a foundation for

pedagogical practice, a platform from which to teach about both the interpretation and production of architecture.

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