

'Psychology of Space': The Psycho-Spatial Architecture of Paul Rudolph

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What is the psychology of space?¹ Dr. Shyam K. Bhat, a psychiatrist and integrative medicine specialist working in India and the United States, describes it as completing our psychological selves (aspirations, dreams, hopes, desires), reducing our fears and shortcomings, as authentic (true and consistent to time, place, and self), and as integrated (balancing masculine/feminine, order/chaos, symmetry/asymmetry).² In summarizing the psychology of space as a “healthy environment for mind and body,” he states: “The psyche is the source, the destination, and the abode, of all architecture.”³ Dr. Bhat has claimed elsewhere, “Paul Rudolph, the Carl Jung of architects, believed that architecture was basically about manipulating space, light, proportion, texture, and material to fulfill the psychological needs of the occupants.”⁴ Through surveying Paul Rudolph’s idea of the ‘psychology of space,’ within the framework of architectural/spatial psychology theory, and three of his built works, this paper aims to evaluate the role of spatial psychology within architectural design.

Paul Rudolph was in the group of late modern American architects working in the 1950s-1970s, including Louis Kahn, Eero Saarinen, and Philip Johnson. Born the son of a Methodist minister, Rudolph worked in the Brooklyn Navy Yard during WWII and continued his studies under Walter Gropius at Harvard. In 1958, he was appointed Chair of the Architecture Department

¹ “Architectural psychology can be described as a branch of environmental or ecological psychology. This deals with the psychological processes of the interaction between man and his environment, as for example spatial perception, spatial thinking, orientation behavior, or spatial experience, territorial behavior, living requirements and satisfaction, local identity.” Leonhard Oberasche, “architectural psychology,” *leoncolor.com*, accessed November 21, 2014, http://leoncolor.com/architectural_psychology.html, quoted in Maria Lorena Lehman, “Architectural Psychology Explained,” *Sensing Architecture*, August 19, 2009, <http://sensingarchitecture.com/1615/architectural-psychology-explained/>.

² Dr. Shyam K. Bhat, “Structure, Space, and the Mind,” presentation, accessed November 21, 2014, http://www.slideshare.net/shyambhat?utm_campaign=profiletracking&utm_medium=sssite&utm_source=ssslideview.

³ Ibid.

⁴ Ranjani Govind, article from *The Hindu*, sections republished on “Paul Rudolph and the Psychology of Space,” *The Paul Rudolph Foundation*, January 29, 2010, <http://paulrudolph.blogspot.com/2010/01/paul-rudolph-and-psychology-of-space.html>.

at Yale, a position he would hold until 1965. Influenced by three great architects, Le Corbusier, Frank Lloyd Wright, and Mies van der Rohe, Rudolph would pay homage to these architectural masterminds, yet he firmly believed that the International Style and the Modern movement had not addressed some important issues, one of them being the ‘psychology of space.’ From early in his career, Paul Rudolph espoused the idea of a ‘psychology of space,’ explained in a manifesto, “Six Determinants of Architectural Forms,” published in *Architectural Record* in October 1956. As the fifth determinant of form, “the peculiar psychological demands of the building or place” are reached through the manipulation of space and use of symbols. Rudolph claims, explicitly in spiritual-psyche affected language:

We must learn how to create a place of worship and inspiration; how to make quiet, enclosed, isolated spaces; spaces full of hustling, bustling activities pungent with vitality; dignified, vast, sumptuous, even awe-inspiring spaces; mysterious spaces; transition spaces which define, separate, and yet join juxtaposed spaces of one’s curiosity, give a sense of anticipation, beckon and impel us to rush forward to find that releasing space which dominates, which promises a climax and therefore gives direction.”⁵ Furthermore, Rudolph claims that if these spaces are to be created, “If we are to enrich our architecture, it will be through better understanding of our concept of space, its effect upon and relationship to people, and the forces which dominate and plague us.”⁶

Rudolph continued to speak about the psychology of space, the psychological needs of the users of space, and the complex relationship between them. In a 1977 article, “Enigmas of Architecture,” Rudolph claims: “Architecture is used space formed for psychological and symbolical reasons. Architectural space overrides all its integrating elements and concepts by consciously forming enclosed voids to accommodate human beings in the totality of their psychic

⁵ Paul Rudolph, “Six Determinants of Architectural Forms,” *Architectural Record* 120 (October 1956): 183-190, republished in Paul Rudolph, *Writings on Architecture* (New Haven: Yale School of Architecture/Yale University Press, 2008), 24.

⁶ Paul Rudolph, “To Enrich Our Architecture,” *Journal of Architectural Education* 13, no. 1 (Spring 1958), republished in Paul Rudolph, *Writings on Architecture* (New Haven: Yale School of Architecture/Yale University Press, 2008), 41.

and physical life and in their various pursuits and intentions.”⁷ Rudolph entertains the idea of the spiritual, whether with religious undertones or not, on several occasions, yet one of the most striking examples is when he claims, “The relationship between everyday needs and spiritual needs is very complex, and they are often at war with each other.”⁸ And maybe this is why we should look at Rudolph’s architecture in terms of space and the human condition, or spirit. Can we get at the essence of Rudolphian symbolic form and environment, grounded in the physicality of architectural space? Rudolph himself believed that we could when he claimed:

People, if they think about architecture at all, usually think in terms of the materials. While that’s important, it’s not the thing that determines the psychology of the building. It’s really the compression and release of space, the lighting of that space—dark to light—and the progression of one space to another. Because one remembers in that sense. Architecture is very much like music—just as you remember the introductory themes of any great symphony; architectural themes are experienced throughout the space from within. And that’s what unifies it.⁹

Therefore, formally, Rudolph sees the compression/release, the lighting, and the progression of space as the factors that induce a psychological effect on the user. This is echoed by Amos Rapoport in his study of the built environment: “In the case of environment, the relationships are primarily, although not exclusively, spatial – objects and people are related through various *degrees of separation in and by space*.”¹⁰ Rudolph was not just repeating himself over many years simply because he was being ingenuous or of a sterile mind. Rudolph repeatedly discussed the psychology of space and invited other architects and readers to do the same. He

⁷ Paul Rudolph, “Enigmas of Architecture,” *A + U* (1977): 317-320, quoted in Tony Monk, *The Art and Architecture of Paul Rudolph* (Chichester: Wiley-Academy, 1999), 8.

⁸ Philip Nobel, “The Architecture of Madness: Buildings Can Drive You Crazy, But Can They Help Restore Mental Health?,” *Metropolis* 19 (October 1999): 128-131, 161.

⁹ John Zinsser, “Staying Creative; Artistic Passion Is A Lifelong Pursuit – And These Mature Masters Prove The Point. (Otto Luening, Elizabeth Catlett, Paul Rudolph),” *50 Plus 25* (December 1985): 49-55.

¹⁰ Amos Rapoport, *The Meaning of the Built Environment: A Nonverbal Communication Approach* (Beverly Hills: Sage Publications, 1982), 178.

firmly believed that architects had the position of framing the user, the human, in space and this greatly affected the psychology of the user.

Rudolph's psychology of space (psychological effects of the elementary forms of spatial concepts which Rudolph championed, such as movement through space, scale, dimensions of space, and topography of space) can be better understood through a look at Jean Piaget's study of child development and the fundamental concepts of space (how the user views space, conceives and perceives space) and how these concepts are not simply inherited, but acted out. Piaget and Barbel Inhelder's study, *The Child's Conception of Space*, first published in French in 1948, revealed this about the human body's perception of space, as inextricably tied to action within space. The most elementary forms of spatial perception are the topological considerations of proximity (scale, as related to architecture), separation, order (symmetry), enclosure-surrounding, and continuity.¹¹ These spatial concepts mature with age as a child's sensori-motor activity improves and is acted out (eye movements, tactile exploration, imitative analysis, active transpositions, etc.)¹² But, what is most important in adolescent perception of space is the performance of the space, the action. In questioning "whether spatial concepts are really internalized actions or whether they are merely symbolic images in place of physical actions," Piaget and Inhelder claim

¹¹ Jean Piaget and Barbel Inhelder, *The Child's Conception of Space*, trans. F. J. Langdon and J. L. Lunzer (London: Routledge and Kegan Paul Ltd., 1956) [first published in French as *La Représentation de l'Espace chez l'Enfant* in 1948; first American edition, 1967 (Norton)], 6-10. Furthermore, the language of Piaget and Inhelder's spatial concepts is similar to Ralf Weber's "Figural Dimensions of Architectural Space" in *On the Aesthetics of Architecture: A Psychological Approach to the Structure and the Order of Perceived Architectural Space* (Aldershot: Avebury, 1995), 136-160. Weber argues that the following five dimensions are how humans psychologically perceive space and are thus affected by its success or failure in built forms: 1) centricity (center, foci), 2) concavity (surrounding of people in space), 3) closure and peripheral density (scale), 4) uniformity and coherence of boundaries, and 5) internal division of space and spatial density (clearly and partly defined spaces).

¹² *Ibid.*, 10-12. Three periods of early childhood development of the perception of space: 1) pre-perspective and pre-Euclidean relationships (topological), 2) shape and dimension of objects, and 3) relationships of objects to each other. Described by Meerwein, Rodeck, and Mahnke as, 1) "A child's topological experience in spatial contact to the main parent," 2) "projective recognition of spatial depth, foreground, and background," and 3) "Euclidean recognition, which is geometrically characterized as right angles, parallels, and radiuses." *Color: Communication in Architectural Space*, 62.

that young children cannot visualize results unless they have seen the action performed, and that “this is because thought can only replace action on the basis of the data which action itself provides.”¹³

Piaget’s further study in developmental psychology produced the idea of *schemata*, or the mind’s categories, that a child acquires through interacting with sensory data. This concept upholds two types of application for *schemata*: assimilation and accommodation. In assimilation, the child uses an existing category to apply to an action or situation, while accommodation involves adapting an existing category to a new action or situation until a new category is created and added to the child’s mental repertoire. Thus, children scan their mental repertoire of categories (*schemata*) in order to most properly perform an action, to find the category that fits the action.¹⁴ Furthermore, Christian Norberg-Schulz claims that humans cannot independently acquire *schemata* because they are guided along social and cultural guidelines (socially accepted norms), which, in turn, lead to a particular set of patterns and classifications.¹⁵

This is interesting to think about in relation to Rudolph’s idea of spatial psychology, and the role of an architect in shaping a space that will affect the psyche of its users. A recent study and 2012 publication by architect Elizabeth Danze and Stephen M. Sonnenberg, M.D., *Space & Psyche*, argues that the work of architects and psychoanalysts is concerned with similar issues:

Buildings are inert objects, but our experience of them transcends the physical realm and extends into our deepest consciousness. Architecture, in particular, which moves beyond mere *building*, strives to enhance the human condition and promote emotional well-being through the manipulation of space, light, material, and form. Psychoanalysis is concerned with many things, among them, the means by which

¹³ Ibid., 453.

¹⁴ Mark Gelernter, *Sources of Architectural Form: A Critical History of Western Design Theory* (Manchester: University of Manchester Press, 1995), 267-271. The final chapter titled, “The twentieth century (II),” includes discussions of Paul Rudolph among other architects, functionalism, the structuralism theory of Piaget and Norberg-Schulz, and other topics relevant to Late Modernism.

¹⁵ Ibid., 271. See Christian Norberg-Schulz, *Intentions in Architecture* (Cambridge: MIT Press, 1965), 41-48, for a deeper analysis of Piaget’s *schemata* in the realm of architectural theory.

places enter our psyches and become a part of who we are. Both psychoanalysts and architects care about people's identities and memories, hopes, and dreams. These human constructs are replete with spatial, architectural images—images of safety, danger, permanence, enclosure, and reflection—as well as with a full range of emotions.¹⁶

And so, some argue that architects should think about the psychological needs of the users of their buildings, from design to its execution in the built form. Indeed, Umberto Eco claims that “architectural discourse is *psychologically persuasive*: with a gentle hand (even if one is not aware of this as a form of manipulation) one is prompted to follow the ‘instructions’ implicit in the architectural message.”¹⁷

Similarly, the psychological-emotional effect of color on the viewer is important to the study of spatial perception and, arguably, on Rudolph's vision of space and spatial perception (as an artist himself). Wassily Kandinsky was a pre-Rudolphian era color theorist, claiming that the effect of color on the viewer was at first purely physical, performing no lasting impact on the soul; yet, this immediate physical impact of color on the perception of the viewer could lead to a powerful ‘vibration’ on the soul of the viewer.¹⁸ Although Rudolph was not directly affected by Kandinsky's color theory, Rudolph was influenced by color theorist and chair of the art department at Yale, Josef Albers. And, although Rudolph did not think that Albers' principles of color theory were directly applicable to architectural space and forms, the impact of color theory, perception, and space was not unknown to Rudolph.¹⁹ Combining color theory and architectural-

¹⁶ From the introduction to Elizabeth Danze and Stephen M. Sonnenberg, M.D., *Space & Psyche* (Austin: University of Texas at Austin Press/Center for American Architecture and Design, 2012), quoted in Stephen Sharpe, “Headspace: Psychology and Architecture,” *AIArchitect* 22, April 11, 2014, <http://www.aia.org/practicing/AIAB102121>.

¹⁷ Umberto Eco, “Function and Sign: The Semiotics of Architecture,” in *Rethinking Architecture: A Reader in Cultural Theory*, ed. Neil Leach (New York: Routledge, 1997), 196, originally published in *The City and the Sign*, eds. M. Gottdiener and A. Lagopoulos, 56-85 (New York: Columbia University Press, 1986).

¹⁸ Wassily Kandinsky, *Concerning the Spiritual in Art*, trans. M. T. H. Sadler (New York: Dover, 1977) [first English edition published in 1914], 28.

¹⁹ Albers taught at the Bauhaus in Germany in the 1920s along with Wassily Kandinsky and Paul Klee. The 1920s Bauhaus, under the leadership of Walter Gropius, had a direct effect on Rudolph through his education at Harvard GDS

spatial theory, Gerhard Meerwein, Bettina Rodeck, and Frank Mahnke develop the psychological effect of space on the user: “Every stimulation has a rational and an emotional feature...Formal, three-dimensional constructs are also evaluated as being harmonious or unharmonious.”²⁰

Moving forward from color theory, these scholars conclude that the effects of ‘perceptual space’ act in a similar way as color-perception. They state:

Formal features define the space as it is, its architectural structure. Functional features define the space in relation to the task it is meant to fulfill, in other words, its performance and effect. With architectural structural (formal) features we are dealing with objective, quantifiable factors. The performance and effect of a space, however, depend mainly on the user’s subjective goals, personal experience, and expectations. This area of design is thus more difficult to plan and present objectively. The performance of space can be described according to features of use, such as: organization of processes, assigning jobs and distances, conditions for lighting and exposure, acoustics, and climate control, etc. The effect of space, the ‘perceptual space,’ the emotional aspects of its appearance, the environment, can be described by terms such as: image, identification potentiality, originality, symbolic value, and atmospheres, such as prestigious, comfortable, rustic, domestic, ceremonial, religious...One danger is that the planning phase of the architectural form is rationally the easiest to achieve, while the ‘emotional value’ of the space is often ignored, because here, planners would have to deal with the users’ subjective opinions, social backgrounds, psychological sensations, and physiological structures.²¹

Thus, the viewers/users of architectural space are influenced by its formal qualities and the projected or communally constructed/assigned function of the space. The viewers/users extract meaning from this space through the totality of formal and functional concepts of the space along with their subjective ‘spatial experience,’ but in the capacity of ‘mental concepts’ that exist

in the 1940s-1950s when Walter Gropius was his teacher. Additionally, Rudolph invited Albers to create a sculpture for the new Art and Architecture Building. The result, *Repeat and Reverse* (1963), is mounted above the main entrance to Rudolph Hall and is Albers’ interpretation of perception and geometry in line-form. Clearly, perception was an important issue to Albers and definitely for Rudolph as well, with Rudolph explicitly claiming its psychological effect on the viewer and user of space.

²⁰ Gerhard Meerwein, Bettina Rodeck, Frank Mahnke, *Color: Communication in Architectural Space* (Basel: Birkhauser Verlag, 2007) [originally published in German as *Mensch-Farbe-Raum* in 1998], 56.

²¹ *Ibid.*, 57-58.

(personal and socially constructed *schemata*).²² In summation, these scholars claim, “Architectural space is a space of behavior, and its spatial model involves location, path, field, zone, area, and border.”²³

And who first designates architectural space but the architect? The planning/building committees can enter here as secondary sources of decision-making in design, but the architect’s role as shaping/forming a space and providing a spatial atmosphere or environment, in which users will be influenced by the space and have their own influence *on* the space, is primary. As many have claimed, including those scholars introduced above, the architect’s role as shaper of space and the psychology of that space has often been overlooked. It is in the following analysis of three buildings by Paul Rudolph that the psychology of these spaces will not be overlooked. Rather, the Boston Government Services Center (Chapel), Yale Art and Architecture Building (Rudolph Hall), and the Cannon Chapel are presented as essential and primary for understanding Rudolph’s personal ideology (psychology of space) and the resulting forms of these architectural spaces through the reception of and reaction to these three buildings within a psycho-social framework.

Rudolph’s intention in designing spaces was to make the user react, although sometimes this did not work as planned. When the Boston Government Services Center opened in 1971, although the entire building plan was not completed, Rudolph’s psychology of architectural space backfired. In designing one section of the BGSC, the Lindemann Mental Health Center, Rudolph “tried to recreate the hallucinogenic or exaggerated mental and emotional states of the insane

²² Ibid., 61.

²³ Ibid., 62.

with never ending corridors, dismal atmospheres, and twisting stairways.”²⁴ Rudolph’s plan for this building has been called “a romanticized view of mental illness...Rudolph made the building ‘insane’ in the hope that it would sooth those who dwell in it by reflecting the insanity they feel within.”²⁵ This is most pronounced in the small chapel at the top of a turret in the Lindemann Center (**Fig. 1**). The chapel was closed to patients in 1972, only one year after it had opened, because a patient lit himself on fire on the concrete slab altar. A psychiatrist working there at the time claimed that the patient was just following his environmental cues, because “It looks like a place that should be used for human sacrifice.”²⁶ Ironically, the same year the BGSC opened, in 1971, Rudolph wrote in an article, “The users of architecture are interested first of all in the qualities of architectural space.”

The users of the BGSC were definitely interested in its qualities, ones that they perceived as twisted, harsh, and not conducive to an environment of ‘insanity’ although it mirrored the mental conditions of the users. Their perception of the space was as an aggravation of their psychological disorders, stimulated by the perverse sensory details within the space.²⁷ In a recent monograph on Rudolph’s architecture, the BGSC chapel is described as a “remarkable interior, completely curvilinear, bearing an unmistakable resemblance to a giant concrete nautilus shell...Archetypal in feeling, like a cave, it was one of the several churches the architect designed in the early and mid-1960s that demonstrated his affinity for the emotionally charged interiors of religious

²⁴ Michele Koh, “Architecture of Insanity: Boston Government Services Center,” *Singapore Architect* (April 2010): 148-153. p.148.

²⁵ Ibid.

²⁶ Ibid., 152. Anecdotes come from Matthew P. Dumont, *Treating the Poor: A Personal Sojourn Through the Rise and Fall of Community Mental Health* (Andover, N.H.: St. Dymphna Press, 1992).

²⁷ For the link between architecture, emotions, and psychosomatics, see Frank H. Mahnke, “Color in Architecture – More Than Just Decoration,” *Architect*, July 2012, <http://architect.com/features/article/53292622/color-in-architecture-more-than-just-decoration>.

buildings.”²⁸ This disconnect between the psychiatrist/patient’s interaction with the chapel (as in the anecdote above) and the architect/architectural historian’s interaction with the chapel (Tim Rohan’s formal analysis of the space) reveal what modern scholars of architectural psychology are calling for: the architect as psychologist (and as sociologist, anthropologist, semiotician, etc.)²⁹

So for the BGSC Chapel, did Rudolph simply miss the mark in designing a humanizing space? Timothy Rohan describes Rudolph’s intentions for the entire spatial complex of the BGSC as, “...he advocated enclosure, believing that it would stimulate strong, positive, emotional responses from the individuals and the community.”³⁰ It elicited two of these responses: strong and emotional. The opposite response of positive occurred, as in the anecdotal examples above. Rudolph was influenced by the psychological-impact theories of Camillo Sitte and Sigfried Giedion. Sitte influenced the enclosed plaza of the BGSC complex and Giedion’s theoretical influence prompted Rudolph to adopt the “undulating walls and flexible floor plans of the late baroque” to bring about an “emotional response to architecture.”³¹ Rohan claims that Rudolph’s appropriation of baroque forms in the Lindemann Center was to support the recent Community Mental Health Act of 1963 (**Fig. 2**). This bill allowed for mentally ill patients to live in community housing rather than isolated in state-run psychiatric wards. The Lindemann Center was to be a transitional institution to promote this new approach to mental health, with patient care and services for those patients now living in the community (It acted as both an inpatient and outpatient facility). With

²⁸ Timothy M. Rohan, “Scenographic Urbanism: Paul Rudolph and the Public Realm,” *Place Journal*, June 2014, <https://placesjournal.org/article/scenographic-urbanism-paul-rudolph-and-the-public-realm/>, originally published as, Chapter 5, “Scenographic Urbanism,” in Timothy M. Rohan, *The Architecture of Paul Rudolph* (New Haven: Yale University Press, 2014), 125.

²⁹ Umberto Eco, “Function and Sign: The Semiotics of Architecture,” 199-200. Furthermore, Eco claims that the architect is “Forced to find forms that will give form to systems over which *he has no power*, forced to articulate a language that has always to express something external to it...”

³⁰ Tim Rohan, “Scenographic Urbanism,” <https://placesjournal.org/article/scenographic-urbanism-paul-rudolph-and-the-public-realm/>.

³¹ Ibid.

this in mind, Rudolph used ‘non-orthogonal geometry’ hoping that it would be ‘beneficial and even therapeutic.’³²

Scholars have produced much literature on the architecture of healthcare facilities and their psychological effects (as successful or not) because it is a rare architectural form that must act as caretaker, an anomaly in building (although an argument can be made for religious buildings as caretakers of the human spirit/soul/religious experience).³³ This is a debated topic of architectural form because the relationship to the mind and body is a complex one, as Rudolph claimed above. To build a physical space that will house physical bodies that are not totally in ‘control’ of their actions (as opposed to a socially constructed idea of a ‘mentally fit’ person) is not easy. And, as we have seen, the architect’s attempt to create a space that will act as caretaker for these minds and bodies, without producing a wholly sterile, minimalist hospital-like environment, is not always successful.³⁴

The William R. Cannon Chapel in the heart of Emory University’s campus in Atlanta, Georgia is one of Paul Rudolph best designed spaces (**Fig. 3**). The chapel, now host to interfaith services as a shared religious space, was designed by Rudolph in the late 1970s; ground was

³² Ibid. Rohan makes the following claim about Rudolph’s attempt at therapeutic architecture in the BGSC: “Though easily discounted as an example of Rudolph’s desire to show off his skills, such attention to the patients’ environment suggested he felt a true regard for them.” In opposition, Philip Nobel has claimed, “But beyond Rudolph, the saga of the Lindemann is a sort of cautionary tale about Modern architecture’s persistent belief that it can affect human behavior. As this extreme example shows, it can certainly hurt. Can architecture also heal?” In “The Architecture of Madness: Buildings Can Drive You Crazy, But Can They Help Restore Mental Health?,” *Metropolis* 19 (October 1999): 128-131, 161.

³³ Stephen Verderber and David J. Fine, *Healthcare Architecture in an Era of Radical Transformation* (New Haven: Yale University Press, 2000); Andrew Scull, *The Insanity of Place / The Place of Insanity: Essays on the History of Psychiatry* (New York: Routledge, 2006); Carla Yanni, *The Architecture of Madness: Insane Asylums in the United States* (Minneapolis: University of Minnesota Press, 2007). None of these publications refer to the Lindemann Center in the BGSC.

³⁴ “We have made a particular study of therapeutic environments (hospitals, retirement and nursing homes). Patients and people requiring care have specific physical and psychological needs, so they need specially-designed spaces to promote recovery, convalescence, autonomy and quality of life.” Leonhard Oberasche, “architectural psychology,” http://leoncolor.com/architectural_psychology.html.

broken in 1979 and the chapel was consecrated in 1981 with President Jimmy Carter in attendance. Sited just off the quadrangle on Emory's campus, the Cannon Chapel's mass of barrel vaults rises out of the landscape, welcoming students and visitors from each cardinal direction. A masterpiece in poured concrete, the Cannon Chapel is one of Rudolph's greatest achievements in form, function, and legacy. Combining the aural qualities of the stone vaulting of medieval cathedrals and the Henry Hornbostel arches of Emory's other campus buildings, the interior of the Cannon Chapel creates varying levels of light, sound, and physical space. Not only does Rudolph create layers in the physical landscape of the building, he also fosters layering of sightlines, hapticity, and movement. The psycho-spiritual nature of the space reflects the function of the building as a religious space, but also through Rudolph's consideration of formal elements, ones that he mentions as embracing the psychological atmosphere of the space (compression, lighting, and progression of space).

Take also for example the Yale Art and Architecture Building (now Rudolph Hall) completed in 1963. A building with a complex and controversial history, the A&A Building opened in 1963 (critically acclaimed then taking a downward spiral into critically attacked), was partly destroyed by fire in 1969, and underwent years of irregular renovation until it was renovated and preserved in 2008 and designated a New Haven historic landmark in 2014. A building of nine floors with thirty-seven levels creates many architectural spaces, yet these spaces are fluidly attached to each other (**Fig. 5**). Furthermore, the movement of physical bodies through the A&A Building yields an experience of architecture, of the deliberate art of architecture. Rudolph was not just an architect, but also an artist. He took the details and decoration of his buildings as seriously as the design of the structure. The details lead the body (and the psyche) through the space; they allow the body to react to the architecture. Rudolph's influences from humanism and

the architecture of Italy are found in these ways. For Renaissance and Baroque architecture, movement within the space was key in determining the essence of the structure. This essence (religious, communal, spiritual, authoritarian, public, private, industrial, theatrical) was key in the sense that the experience of the space by the user developed the building and the building, in turn, developed the user. The reciprocity of building (architecture) and users impacts the legacy of the structure both in form (design) and function (acceptance).

The recently renovated and expanded A&A Building preserves the idea of Rudolphian space. Rudolph wanted people to see each other, to share in whatever they were doing, to hear each other, to experience space together. For the A&A Building, aspiring architects and successful architects, critics, guests are the actors for Rudolph's theater. At the Cannon Chapel, students, faculty, guests, performers, and the divine are the actors for this sacred architectural space. Both of these varying-leveled forms by Rudolph share in a common experience. Not so much a support system, as it were, but a shared communal aesthetic, with aesthetic referring to the experience of the space through the cognitive senses. The A&A Building is Rudolph's version of the industrial-communal space of Frank Lloyd Wright's Larkin Building. Described as an inward-facing building, the Larkin building upheld the values of a work community, of a family owned industry.³⁵ The A&A Building upholds the values of an academic community, one that Rudolph shaped both as the Chair of the Architecture Department from 1958-1965 and continued today through the architectural space he designed and through one of his students, current dean, Robert A. M. Stern.

³⁵ "Society even needs an amphitheatre shape: it creates an image of being together. Even when it's empty it creates an image of (the possibility of) an event and of being together." Klaske Havik, Gus Tielens, "Atmosphere, Compassion and Embodied Experience. A Conversation about Atmosphere with Juhani Pallasmaa," *Building Atmosphere, OASE* 91 (December 2013): 43.

Yet, perhaps Rudolph put too much of himself in the design – a common critique of the A&A building. Perhaps the subjectivity in experience was his own experience. Perhaps we should not only think about the A&A Building as shaping its users, but also how it shaped its designer. Rudolph put himself into the design, his experience as an educator shaped the product of the building itself. Juhani Pallasmaa explains these subjective interests of the designer in creating a built atmosphere: “Architectural atmosphere is thus bound to be a reflection of the designer’s synthetic existential sense, or sensitive feeling for being, which fuses all the sense stimuli into a singular embodied experience.”³⁶ In the BGSC, Rudolph’s clients were the mentally ill and the city government. In the Art and Architecture Building, Rudolph was the client *and* the architect. He was designing for himself, and thus, for the users of the space which he wanted to affect psychologically as he thought art and architecture students, critics, professors, architects, and visitors should be influenced and impacted by the space.

Perhaps Rudolph’s psychological worldview was not similar to many others working in the Art and Architecture Building, for the vast criticism of the space was a rational and emotional response to building’s architectural spaces and forms. It wasn’t functional enough, nor was it aesthetically successful, in the minds of many. Alison and Peter Smithson of Team 10 and the New Brutalist movement thought it was too monumental. The architectural historian Nikolaus Pevsner gave the address at the buildings inauguration. To the surprise of many, including Rudolph himself, Pevsner had this to say about the space:

What do we see here? Massive pins of concrete rise. Projections are over-emphasized throughout. Heavy slabs are crossed by thin slabs. Spaces inside cross too and offer sequences of most dramatic effects by unexpected vistas inside the

³⁶ Juhani Pallasmaa, “Orchestrating Architecture: Atmosphere in Frank Lloyd Wright’s Buildings,” *Building Atmosphere*, OASE 91 (December 2013): 53.

building and even out of it. It is all very exciting, a powerful stimulant for the students. May it not be too potent for them; too personal as an ambiance?³⁷

The corduroy, bush-hammered concrete walls and the encased nautilus shells of the A&A

Building are Rudolph's lasting reminders to sense the building, to move in it, to create things, to build, to discuss, to see, to critique, to hear as an academic community. This experience does not change in the makeup of the Cannon Chapel. Completed eighteen years after the A&A Building, the Cannon Chapel preserves the Rudolphian experience in a sacred space. In the main chapel of the building, the varying levels of vaults, seats, stairs and passages create movement in the architectural space. The visual, aural, and physical combine in one unified space to provide an experience for the user. A religious user, a performative user, an observative user experience what they have come there for in Rudolph's designed space. The light from the high clerestory windows dances on the concrete of the interior at different intervals depending on the season, an aspect that Rudolph adored about the space. Some say the divine is present in these different levels of space in the Cannon Chapel. The sounds that vibrate from the concrete barrel vaults to the parquet floors remind the user that this is a certain kind of space. It is inviting, it is comfortable, it is beautiful, and it is functional. A community deliberately gathers in this space to perform, whether this is a religious service, a dance recital, or a lecture (**Fig. 4**). What Rudolph achieved in the deliberate levels of space in the A&A Building in 1963 he achieved again in the Cannon Chapel in 1981.

Don Saliers, a resident professor in the chapel for 33 years praised the chapel as a humanizing space which develops movement of both physical bodies, light, and sound. Regarding Rudolph's sense of spirituality and the pinwheel/spiral form of the space, Saliers sees the space as:

³⁷ Nikolaus Pevsner, "Address Given at the Inauguration of the New Art and Architecture Building of Yale University," 9 November 1963. From *Paul Rudolph and His Architecture*, Claire T. Carney Library, UMass-Dartmouth, site curated by Bruce Barnes, <http://prudolph.lib.umassd.edu/files/pr/Address%20Given%20by%20Nikolaus%20Pevsner.pdf>

...definitely communal, I mean definitely he wanted to build a communitarian, as it were, building where people would see each other and of course one of the delights of that chapel is if you get children in there, they know what to do, they run up spirally, they peek above the high backs, they simply rejoice in this movement that the room has, the natural movement in it.³⁸

So how are these two buildings representative of Rudolph's psychology of space? Going back to the example of a negative psychological space in the BGSC Chapel, an architect's consistency from idea, plan, and execution is not always fluid, nor does it always turn out positively. For years, art and architecture students lamented the spaces of the A&A Building; the spaces did not function to the level that Rudolph wanted them to. Yet, today on the fifth floor you might find an impromptu badminton game being played amidst piles of cardboard and paper scraps, students taking naps, and others working out minute details of an architectural model. The success of a space as a positive psychological space cannot be separated from the function and meaning of a space, and again, can ultimately rely on the subjective lens of the user. Architectural psychology and the psychology of space are recent fields of research, and as these fields work themselves out, we can begin to analyze buildings, old and new, based on their role in affecting the human condition, the psyche, and perhaps the soul. Maybe this has already begun at the Cannon Chapel at Emory. Prof. Saliers summarizes the success of Paul Rudolph's psychology of space for the Cannon Chapel as being a humanizing space in its formal and phenomenological qualities:

All I can say is that the building really is a humanizing and deeply shaping space. People go away from there, although it's one of a kind in one sense, you won't find many churches like it, people go away having remarked on how they've experienced light and textures and one another, and that is finally, I think, an architect's greatest compliment.³⁹

³⁸ Don Saliers (Professor, Candler School of Theology, Emory University, Atlanta, Georgia), phone interview and transcription by Daniel Ledford, October 3, 2014.

³⁹ Don Saliers, interview with Daniel Ledford, October 3, 2014.

For Paul Rudolph, the psychology of a space was important to the function and meaning of architectural space, not only for the architect in design, but for the users of the space, who arguably know the qualities of space better than the architect or the architectural historian. In this analysis, three buildings designed by Rudolph have been framed by theory of spatial and architectural psychology with the hope that the reception and perception of these buildings by their users could expand our knowledge of how Rudolph viewed space and its psychological effects. Perhaps, in the midst of these theories and applications, we were also able to understand the subjective qualities of architectural design through the architect. Rudolph's ego was intimately tangled in the spaces that he designed, with the Art and Architecture Building, now, most appropriately, Rudolph Hall, as the primary example. From the design to the execution to the function of the building, Rudolph's ego was in the corduroy concrete walls, the orange carpets, and the framing views of New Haven (**Fig. 6**). In this sense, Rudolph Hall is a self-reflection of Rudolph's psychology in built architectural space. And, Rudolph be burdened by this for the rest of his life, his psychological-self wrapped up in one single work: "I've never worked on a building that affected me as much as that one does. I'd like to think that, in spite of everything, it says something about the nature of architecture."⁴⁰

⁴⁰ Michael J. Crosbie, "Interview with Paul Rudolph," *Architecture* (1988): 102-107, republished in Paul Rudolph, *Writings on Architecture* (New Haven: Yale School of Architecture/Yale University Press, 2008), 148.

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