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# Extraordinary architectural experiences: comparative study of three paradigmatic cases of sacred spaces

## *The Pantheon, the Chartres Cathedral and the Chapel of Ronchamp*

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**Abstract.** *Using nearly 2,900 entries to a survey on “Extraordinary Architectural Experiences” (EAEs) as a general background mapping the “subjective side” of extraordinary atmospheres, this paper focuses on three paradigmatic (and sacred) buildings reported to induce such exceptional responses: the Chartres Cathedral, the Pantheon, and the chapel of Ronchamp. The purpose is to (a) Present the unique phenomenological signature of each building’s ambiance; and (b) Offer a comparative analysis between them and in relation to EAEs in general.*

**Keywords:** *phenomenology, religion, empirical, statistics, psychology, quality*

### Central argument and background research

We have long known that certain buildings consistently elicit the most profound aesthetic experiences – think of the Parthenon, La Alhambra, or the Salk Institute in California. Naturally, the architecture discipline has devoted much energy to map the “objective” framework (e.g., dimensions, proportions, materials, light, etc.) supporting such extraordinary responses. Yet, little attention has gone to actual “subjective” reactions (e.g., emotions; body reactions; levels of spontaneity, volition, or introspection; focus; reached insight, etc.) The reasons for this asymmetry are many but are all centered in the (seemingly) inaccessible nature of consciousness. We have tried to close the gap by resorting to scholarship or reductionist science to speculate about how we experience space, place, tectonics, scale, meaning, etc. (Bachelard, Hillier, Krampen, Mearleau-Ponty, Norberg-Schulz, Rasmussen). This has been helpful but frustratingly vague and scientifically weak at best.

In the First International Congress on Ambiances in Grenoble (2008), Bermudez presented initial results of two major surveys on “Extraordinary Architectural Experiences” (or EAEs) devoted to address this shortcoming (Bermudez, 2008). Both surveys (one in English and one in Spanish) had the same 36 questions covering qualitative and quantitative measurements of EAEs defined as “an encounter with a building or place that fundamentally alters one’s normal state of being. By ‘fundamental alteration’ it is meant a powerful and lasting shift in one’s physical, perceptual, emotional, intellectual, and/or spiritual appreciation of architecture. In contrast, an ordinary experience of architecture, however interesting or engaging, does not cause a significant impact in one’s life”.

The online polls gathered the largest number of responses ever collected (N=2,872), thus enabling a level of statistical analysis impossible until then. Although many of the research findings from this effort have been published (Bermudez, 2008, 2009a, 2011a-c), this knowledge has covered the “subjective side” of extraordinary atmospheres with a bias towards what is common or general.

We here present a new way to look at the survey data by investigating 3 paradigmatic architectural ambiances occasioned by the Pantheon, the Chartres Cathedral, and the chapel of Ronchamp. We picked them out of a long list of candidates for the following reasons:

- they are in the ten most cited places said to induce EAEs (see list in Bermudez, 2009a) – thus providing us with a solid agreement of the high quality and success of these structures;
- they were all designed as sacred spaces, are still in operation, and dedicated to serve the Catholic Church (the Pantheon was co-opted to do so since the 7<sup>th</sup> Century) – thus focusing our study in religious atmospheres of a very particular kind;
- they were built to address very different cultural, technological, architectural, liturgical, cosmological, programmatic, and other demands – thus enabling us to gauge the impact that fundamentally distinct civilizations and time periods may have in contemporary experience.

Note: English Survey statistics are in **bold** whereas those for the Spanish poll are in *italics*.

## Methodology

The information utilized to conduct these three case studies come from the large survey database which, after removing the extracted case-studies, served as a comparative background. While we counted every single naming of a structure or place to produce the tally of buildings provoking EAEs (see the list in Bermudez 2009a)<sup>1</sup>, for this study we consider only those entries that could be verified to pertain to that particular building. We devised two rules to accomplish this:

- Rule 1: Keep entry if there is only one building cited in Q3 -OR- if the *same* building is again confirmed as the primary subject in Q29;<sup>2</sup>
- Rule 2: Keep entry if there is an experiential account in either question Q29 or Q30<sup>2</sup> that affirms such building even if it was *not* named in Q3.

Based on these criteria we ended up with the **20**, 6 entries for the Pantheon; **13**, 3 for Chartres; and **21**, 13 for Ronchamp. While these entries do not seem many compared to the **1,207**, 561 of fully completed entries (“All Other EAEs”),<sup>3</sup> they are still within statistical range for entries in the English survey (taken to be at least 11 entries). Due to space limitation and the lack of enough entries for two of the three Spanish survey cases, we have decided not to include them in the present paper.

## The nature of extraordinary architectural experiences

Before proceeding with the analysis of our three specific atmospheres, we will summarize the essential nature of EAEs within and against which our cases will be considered.

The surveys show that EAEs have a sudden (**51.5%**, 58.5%) and surprising (**76%**, 83%) arousal; unfold spontaneously (**78.5%**, 91%); are intense (**80%**, 88.5%), profound (**89%**, 91.5%) and vivid (**85.5%**, 84.5%); attain high states of awareness (**92.5%**, 78%); feel as introspective/silent (**87.5%**, 87%); and involve strong body reactions – goose bumps, heart pounding, shivers, etc. (**56.5%**, 43%). When we consider these attributes in relation to:

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1. Although Survey Question 3 (Q3) specifically asked to name the building that had caused the EAE, many survey participants often named many buildings prior to going into their particular experience.

2. Survey Question 29 (Q29) invited participants to write up their EAE “as close as possible as to how [they] remember it” whereas Survey Question 30 (Q30) to share any additional comments.

3. Although there were **1,890** and 982 total entries, **7%**, 8% of them answered NO to the first survey question (“Have you ever had an EAE?”) and therefore are not here included, nor are any entry that was only partially completed.

- the incredible impression of EAEs in peoples’ lives (**91.4%**, 76.9% rated these experiences to be as or more powerful than other “very strong life experiences”);
- the high infrequency of the event (**59.5%**, 65.7% indicated to have had five or less EAEs in their entire lives);
- the huge distances people traveled to enjoy them (**3,400**, 3,900 miles); and
- their brief duration (**52%**, 65.5% timed EAEs at less than 30 minutes);

we realize the great force that these experiences have. It is hardly surprising to see **18%**, 28.5% of the people acknowledging weeping and the high levels of recall reported (**63.5%**, 64%) even though the average time lapsed between an event and its highly detailed reporting was **13**, 11 years (Bermudez, 2011c).

More specifically, when asked to define four experiential characteristics of their extraordinary encounter, English and Spanish speaking participants agreed despite being so far apart in space, language and culture: EAEs are strongly *pleasurable* and *emotional* events that provide immediate access to the *timeless* nature of *physical, sensorial, and perceptual* reality – and not at all “analytical or intellectual” events. When we consider all these results and add that these experiences did not serve any purpose except their own occurrence nor dispense goods suitable for concrete gain but instead delivered ‘*insight*’ (**55%**, 54.5%), ‘*beauty*’ (**49%**, 54.5%), ‘*joy*’ (**43.5%**) or ‘*satisfaction*’ (44.5%), and ‘*peace*’ (**40%**, 33%) to the individual (Bermudez, 2011c), we must conclude that, in the right conditions, architectural atmospheres can and do become gateways to transcendental experiences. For this very reason, a majority of buildings reported in the survey to induce such extraordinary phenomenologies are religious indeed (Bermudez, 2009a, 2009b).

### Case studies

We started our study by considering the responses to two survey questions directly related to the overall qualities of the experience. Specifically, Question 7 asked “*How would you characterize your extraordinary architectural experience? (Please choose top 5)*” and provided 8 choices: *alert, sensual/perceptual/physical, emotional, personal/private, graceful, timeless, and 3 open slots*. Table 1 shows the results. The first number shows the ranking of the experiential characteristic while the one in parenthesis denotes the percentage of agreement among respondents (responses below 40% were not considered). Notice that the top three choices for all three case studies (and “All Other EAEs”) are the same, but in different order and percentages.

	Sensual-perceptual-physical	Emotional	Timeless	Pleasure	Personal-private	Analytical-Intellectual	Other 1
Pantheon	1 (75%)	2 (65%)	3 (50%)				3 (50%)
Chartres	3 (62%)	1 (85%)	2 (77%)		4 (50%)	5 (46%)	
Ronchamp	2 (71%)	1 (76%)	3 (52%)		4 (50%)		
All Other EAEs	1 (71%)	2 (70%)	3 (50%)	4 (42%)			

Table 1. Summary of Responses to Survey Question 7

Survey question 21 asked “*What did you get out of the experience? (please choose top 3)*” and provided 7 choices: *knowledge, insight, satisfaction, joy, release, peace, beauty, and 3 open slots*. Table 2 shows the most common choices. As in Table 1, the first number indicates the ranking of the quality while the one in parenthesis represents the percentage of agreement among respondents – responses under 40% were not considered. As before,

there is a remarkable accord on the top four selections even when differing in hierarchy and percentages.

	<i>Insight</i>	<i>Beauty</i>	<i>Joy</i>	<i>Peace</i>
Pantheon	2 (55%)	3 (50%)	1 (60%)	2 (55%)
Chartres	1 (69%)	2 (46%)	2 (46%)	2 (46%)
Ronchamp	1 (62%)	2 (57%)	2 (57%)	3 (48%)
<i>All Other EAEs</i>	1 (55%)	2 (49%)	3 (43%)	4 (40%)

Table 2. Summary of Responses to Survey Question 21

In order to statistically analyze the rest of the Survey database, we developed four criteria. First, survey entries that had no relevancy to the analytical task at hand were removed. Second, there had to be a  $\geq 5\%$  relative difference between the average EAEs and at least one of the studied EAEs for an experiential dimension to be included in the analysis. The combination of the first two rules reduced the number of entries to 17 (from 27). Third, differences were ranked as high, medium or low based on their comparative percentage difference and assigned a 1.0, 0.5, or 0.25 coefficient respectively. Fourth, any percentage disparity  $\geq 15\%$  received a 50% boost in its coefficient to acknowledge its strong weight. The result of these methodological operations is presented in table 3. Numbers on the left (*Location*) portray percentage differences between EAEs at a particular place and the average EAE. Bold numbers in grey boxes show  $\geq 15\%$  percentage differences. Numbers on the right (*Differences*) list the coefficients.

	LOCATION			DIFFERENCES		
	<i>Pantheon (P)</i>	<i>Chartres (C)</i>	<i>Ronchamp (R)</i>	<i>P - R</i>	<i>P - C</i>	<i>C - R</i>
<i>Sudden</i>	38 %	-21 %	-2 %	0.75	1.5	0.375
<i>Surprising*</i>	-13 %	-8 %	-5 %	1	0.5	
<i>No Talking*</i>	44 %	36 %	23 %	1.5	0.5	0.25
<i>Weeping*</i>	33 %	100 %	11 %	0.375	0.75	1.5
<i>Embodied</i>	36 %	30 %	-2 %	1.5	0.25	0.75
<i>Introspective and Silent*</i>	9 %	6 %	9 %			
<i>Aware*</i>	-4 %	-9 %	-3 %		0.5	1
<i>Intense</i>	-19 %	15 %	0 %	0.75	1.5	0.375
<i>Profound*</i>	7 %	12 %	7 %		1	1
<i>Spontaneous*</i>	3 %	6 %	15 %	1		0.5
<i>No Words</i>	19 %	-5 %	-33 %	1.5	0.375	0.75
<i>Shared</i>	-13 %	16 %	5 %	0.5	1.5	0.25
<i>Transforming</i>	-9 %	0 %	5 %	1	0.5	0.25
<i>Strong Recall</i>	-6 %	0 %	25 %	1.5	0.25	0.5
<i>Male</i>	-24 %	8 %	-3 %	0.75	1.5	0.25
<i>Grad+ Educ</i>	-12 %	34 %	26 %	0.75	1.5	0.25
<i>Architecture</i>	27 %	0 %	47 %	0.375	0.75	1.5
<b>Total</b>				<b>13.3</b>	<b>12.9</b>	<b>9.5</b>

Table 3. Differences and Commonalities among EAEs induced by the Pantheon, the Chartres Cathedral, and the chapel of Ronchamp

### *Commonalities of the three EAEs in contrast to the average EAE*

There are seven experiential dimensions that, in general, differentiate the three EAEs being considered from the average EAE. They are marked with an asterisk (\*) in table 3. Extraordinary Architectural Experiences at the Pantheon, Chartres and Ronchamp are significantly less talkative, more introspective/silent, more profound, more spontaneous, and more heart-wrenching than the mean EAE. Other less striking but still worth mentioning differences include their being less surprising and aware. Notice that not all percentages necessarily have the same weight. For example, since the average EAE was recognized as “profound” by 89% of the survey participants, although our three EAEs have *only* a 7% or 12% higher “profundity”, the level of depth achieved during these experiences is all the more remarkable (Chartres gets to 100% !). Similar but in the opposite direction is awareness. The fact that our three EAEs unfold at a lower level of awareness than the average (–9% or –3%) should not make us forget that the background awareness level was so remarkably high (93%) that our three EAEs still manage to display very impressive levels of awareness (85%, 89% and 90%).

These results may signify that the three EAEs being studied are even more internally driven (introspection, profundity) than most EAEs, something that finds external expression in quiet, non-verbal, unprompted, and tearful manners. This may indicate that at its highest, as Pallasmaa argues (2008), a profound experience of architecture may not be about architecture at all – the building atmosphere being a bridge to a transcendental moment. The reported unsurprising nature of the arousal in all three cases may be explained in part by people’s intentional travel to these buildings. In other words, the preparation, effort, and desire involved in negotiating thousands of miles may naturally diminish surprise, even though it still remains high (65%, 69%, 71% compared to 75% for all EAEs). Yet, the fact that all three buildings managed to catapult people to enjoy a higher spontaneous response suggest that the moment transcended any expectation or pre-established response.

### *Differences between the three EAEs*

Tables 1 and 2 depict Pantheon EAEs as the most Sensual/Perceptual/Physical and joyful experiences of the three. While less emotional than the other two, Pantheon EAEs were described as insightful and peaceful with beauty coming last. Intriguing enough, despite the lower level of overall agreement among the respondents, they did agree in offering their own assessment of the experience<sup>4</sup>. The Pantheon EAEs were the most embodied, non-talkative, and sudden of the three. They were also the least intense, surprising, and spontaneous, which generated the weakest levels of recall and caused the lowest changes in the subjects’ understanding of architecture. Yet, paradoxically, Pantheon EAEs were also reported to be unfolding at the highest levels of silence/introspection and causing very profound responses. In terms of communication, these EAEs were said to be the least communicable through words and the least shared with other people. Finally, Pantheon’s EAEs attracted (or were reported by) more females as well as individuals with the least education and number of previous EAEs.

Tables 1 and 2 present Chartres EAEs by far as the most emotional and timeless experiences of the three with the sensual/perceptual/physical coming at a distant third in importance (although still relatively high). EAEs at Chartres Cathedral were primarily about insight with beauty, joy and peace coming at the same but clearly secondary level of impact. Consistent with this phenomenology, Table 3 shows that the Chartres Cathedral induced the most profound, intense, and moving (weeping) experiences of the three and that they were the most shared with others (suggesting a very personal impact, something recognized in Ta-

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4. There were three types of entries : (a) strong, awesome, powerful; (b) sublime/spiritual; and (c) ancient.

ble 1). They were also the least sudden and aware, and attracted/were recounted by most male and educated population. While Chartres' EAEs had high levels of embodiment, non-talking, and introspection/silence, they were lower than the Pantheon EAEs. These results may be partially explained by the paradigmatic Gothic features of this sacred space that speak "naturally" well to how the majoritarilly Christian West conceive/feel/communicate with God.

Tables 1 and 2 paint the experiences at Ronchamp as the most balanced combination of emotionality and sensuality/perception/physicality that dispenses the highest joyful beauty of the three but with insight still coming at the top. Ronchamp produced the highest experiential spontaneity, strongest recall, and most change in visitors' understanding/appreciation of architecture. This is particularly significant because individuals with the highest architectural expertise and second in level of education are the ones that reported such transformation. At the same time, these same people said that their encounter with Ronchamp was the easiest to communicate through words, something hard to explain unless we consider their high level of architectural expertise and lower levels of embodiment, non-talking, and weeping, characteristics that perhaps encourage a more verbal and professional attitude.

## References

- Bermudez J. (2008), Mapping the Phenomenological Territory of Profound Architectural Atmospheres. Results of a Large Survey, *Proceedings of the International Symposium "Creating an atmosphere"*, École Nationale Supérieure d'Architecture de Grenoble, France, viewed 25 April 2012, [www.cresson.archi.fr/PUBLI/pubCOLLOQUE/AMB8-1Bermudez.pdf](http://www.cresson.archi.fr/PUBLI/pubCOLLOQUE/AMB8-1Bermudez.pdf)
- Bermudez J. (2009a), Amazing Grace. New Research into "Extraordinary Architectural Experiences" Reveals the Central Role of Sacred Place, *Faith & Form*, 42(3), pp. 8-13
- Bermudez J. (2009b), The Extraordinary in Architecture, *2A – Architecture and Art Magazine*, n° 12, pp. 46-49
- Bermudez J. (2011a), Empirical Aesthetics: The Body and Emotion in Extraordinary Architectural Experiences, in Plowright P. & Gamper B. (eds.), *Proceedings of the 2011 Architectural Research Centers Consortium*, Lawrence Tech University, Detroit MI, pp. 369-380
- Bermudez J. (2011b), Outcomes of the Architectural Extraordinary: An Empirical Study, in *Collected Abstracts of the Third Architecture, Culture & Spirituality Symposium* (Electronic Publication), Serenbe GA (June 29-July 1), viewed 25 April 2012, [www.acsforum.org/symposium2011/papers/bermudez.pdf](http://www.acsforum.org/symposium2011/papers/bermudez.pdf)
- Bermudez J. (2011c), Profound Experiences of Architecture. The Role of "Distancing" in the Ineffable, *2A – Architecture and Art Magazine*, n° 17, pp. 20-25
- Pallasmaa J. (2008), *Encounters, Architectural Essays*, Rakennustieto, Helsinki

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