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To cite this version:

HAL Id: hal-01409175
https://hal.science/hal-01409175

Submitted on 12 Dec 2016

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Architectural Vocabularies

Exploring the analogous relationship between light and water

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Abstract. This article seeks to expand architectural vocabularies of light through examination of literary narrative. It finds that writers often describe conditions of light with language analogous to water. Through analysis of creative writings, a verbal taxonomy is constructed. The taxonomy is further developed with visual vocabularies in the form of creative photography. The light-water analogy provides architectural designers a conceptual device that leverages an understanding of water characteristics to expand the ability to work with light, an invisible and intangible substance.

Keywords: light, architecture, analogy

Introduction

This paper grapples with a conundrum: light is an essential material of architecture, yet it is an intangible and transitory substance. In fact, light remains invisible until interrupted by physical matter, revealing itself by simultaneously revealing the object or medium. Furthermore, natural light is highly mutable, subject to solar patterns and sky conditions, landscapes and atmospheres, the orientation of buildings and their apertures, and interior spatial configuration and materiality. Thus, architectural forms, spaces, and experiences are always in flux. This condition of ephemeral light is a challenge for architectural designers as they seek to conceptualise and construct with light. Many find that light is most effectively studied through modeling and experimentation. This author supports such tactics but proposes drawing from creative writing as an additional source of knowledge about the conditions and behaviors of light. This study finds that many authors are keen observers of light and place; moreover, they often fuse the physical occurrence within the context of human experience, generating phenomenological testimony around light, place, and being.

When describing light, authors often use language analogous to water: light pours from the sky, bathes objects, and floods into spaces. This research probes the light-water analogy with the objective of creating a conceptual mindset that materialises light and its behaviors. Analysis of literary works [verbal vocabularies] produces a taxonomy of language. This taxonomy is further explored through modeling and photography [visual vocabularies]. The overarching aim is to develop a conceptual poetic that serves to extend design language and ideation around light.
Light-Water Analogy in Architecture

The light-water analogy is rich and far-reaching. The two entities share many attributes and behaviors including fluidity, wave-like behaviors, and the ability to assume the shape of their container. Of note, it is said that for LeCorbusier, ‘light and water are simply different states of the same material’. (Torres, 2005).

The light-water analogy appears in architectural writings. In Zenithal Light, Torres presents a detailed study of toplighting in which he variously describes light in the language of water — a geyser, a waterfall, waves of sun, milky light, containers and vessels of light. He notes that the Grosses Schauspielhaus Berlin has ‘a vault that drips light’ and at the Regents Park Zoo Rhino and Elephant Pavilion, ‘light drains from the roof as though it were water’ (2005). Plummer, a prolific writer of poetic prose on light, also routinely uses light-water language. In one particularly vivid passage, he borrows language from architect Alberto Campo Baesa to describe Baesa’s Guerrero House as ‘an impluvium of light’, pierced to receive a ‘fine luminous rain’ that ‘splashes us with its slow sweep’s, but also displays the sun’s shifting spectrum in ‘stains of change light projected through skylights ...’ (2009).

The light-water analogy also appears in architectural works. Steven Holl’s Chapel of St. Ignatius is conceived as ‘seven bottles of light’, which correspond to parts of the Jesuit Catholic worship program. Each “bottle” is translated into a spatial volume that captures light from a specific orientation and then transforms it through manipulation of aperture, colour, and interior planes.1 Jean Novel’s Louvre Abu Dhabi is conceived as a shady oasis; renderings show light appearing to shower through a roof-filter, intertwining with a pool of water and the ground plane, creating a shimmer of light throughout the space.2 The analogy extends to the scale of the luminary with Todd Bracher’s Vessel: a solid quartz cylinder, meant to “evoke a magical container of light.”3

Methodology

This research uses analogy as a form of architectural design inquiry. The method is multimodal: first, literary evidence is collected and organised into a taxonomy of language that describes light in terms analogous to water [verbal vocabularies]. Next, this conceptual analogy is explored through creative photography of abstracted architectural models [visual vocabularies].

Verbal Vocabularies

The source for this research is creative writing: fiction, memoir, and poetry. Sources were selected by convenience sample; books that were familiar to the researcher. The literary works were searched for mentions of light that referenced an analogy to water: each passage was collected and entered into a database. The searches were conducted in a variety of ways: by reading the publication; by listening to audio-recording of the publication; and in several instances, with the assist of Google Books search engine. The data occurred in at least three distinct ways: as a direct

analogy — ‘soft light fell all around, like snow’ (VanPelt, 2008); with analogous language, — ‘a ray of sunlight was angling in and splashing on the pale wood of a table’ (Merullo, 2007, p. 295); or implied — ‘Sun comes through the fanlight, falling in colours across the floor; red and blue, purple. I step into it.’ (Atwood, 1989).

For this article, the database comprises (47) literary works that yielded (93) literary passages. In total, (53) unique words were found, with (109) occurrences. This data was sorted and developed into a taxonomy (Figure 1), organised first by parts of speech: verbs (actions of light. water), nouns (objects of light. water), and adjectives (descriptions of light. water). Action language is further classified into flows of, covered by, and containment of; objects are divided into for holding and body of; descriptions are grouped by opacity, texture, and color.

![Figure 1: Taxonomy of light-water language. Size of word indicates frequency of occurrence](image)

**Visual Vocabularies**

The language of the verbal taxonomy is inspiration for creative photography of natural light with abstracted architectural elements: the self-imposed rules were to use limited props and filters. (Figure 2) The intent was to ponder the proposition that light can be conceived as a liquid substance and to develop an eye for such occurrences. The images are reduced to black and white in order to focus on luminous patterning.
Discussion of outcomes

Through this research, three themes are identified. First, light is a potent activator of environmental conditions. Of the three parts of speech, verbs occurred most frequently, comprising 74% of the dataset. According to the literary writings, light often behaves like moving water, flowing with fluid and rhythmic motion and observing gravitational pull. The following two passages demonstrate the effectiveness of using ‘water flow’ language to illustrate the intensity and character of natural light entering an interior space:

No, I’m in Bed, Skylight’s starting to **drip** down light, it must be morning. (Donaghue, 2011)

He goes over to the shutters and folds them back, **flood**ing the room with light. (Hill, 2001)

The language provides additional information on spatial characteristics. In the Donaghue passage, ‘drip’ indicates the source of light is from above (the skylight) and confirms the time of day (the weak light of early morning). ‘Flood’ reinforces light entering through a perimeter aperture; conceptually, the shutters are analogous to the floodgates in a dam. Of all the verbs, ‘flood’ (n=9) was the most common word found and was used in a variety of situations including interior spaces, landscapes, and moonlight. The next-most common word describing the flow of light was ‘fall’ (n=6), used to convey light arriving on a subject.

*The light seemed to **fall** like a benison on everyone beneath it. I, too, wanted to **soak** my skin under such a sun.* (Mayes, 1997)

Once light has fallen on a subject, the subject is then covered — and transformed — by the light. The above Mayes passage uses ‘soak’ which references both the force and cover of the light (sun) and also, the implied transformation. In this category,
the most common word was ‘bathe’ (n=8), a seemingly less forceful, softer light than ‘flood’. Additionally, to be ‘bathed in light’ implies a cleansing, or beautifying, as noted in the following passage:

... the tiny street was normally dark, shadowed by the great 19th century buildings of the old city, but today it was bathed in dusty shafts of light. The faces of the buildings had been torn off. (Addario, 2015)

The creative photography investigation confirms that light has an infinite capacity to activate spatial volumes and transform architectural elements. Without light, the architectural models are dormant and inactive; with light, they are animated and lively.

Containment is the second theme. The sky — both daytime and nighttime — is envisioned as a wellspring from which light pours, drains, and precipitates. This encounter of light from above is the predominate experience, seemingly rooted deep in the collective human consciousness and culture.

... heavens raining down celestial light. (De los Santos, 2006)
The silver light from the enormous moon poured over them, blending with the golden quality of the day, flowing over the children, over Mrs. Whatsit, over the mountain peak. (L'Engle, 1962)

....and then, we would sit and watch as the first hint of sunlight, a light tinge of day blue, would leak out of the eastern horizon, slowly erasing the stars. The day sky would spread high and wide until the first ray of sun would make an appearance. (Kalanthi, 2016)

From an architectural perspective, building elements and luminaries can be conceived as containers, designed to collect, channel, hold, and release light. The photography confirms that that spatial volumes act as vessels of light.

The gym was a huge airy rectangular box, filled with light. (Dederer, 2012)

The final theme is that light is viewed as an object. About 10% of the vocabulary references light as a body of water. With this analogy, light is a subject understandable in terms of proportion, behavior, and descriptive attributes. In the photographic exercise, pools or bodies of light were easily produced through direct sunlight and a defined aperture.

It was dark by the time I got there, and the foyer to the studio was a pool of cheerful yellow light. (Dederer, 2012)
The boy gazed over the truck into the east where the dawn was coming. The stars and their kings and their creatures all swept away in the tide of light. (Johnson, 2015)

Descriptive language represents 14% of the vocabulary; most of the words were found only once or twice, suggesting the character of light is highly variable, assuming its appearance subject to environmental or atmospheric conditions.
These three themes – light as an activator of environmental conditions, containing light, and objectifying light – offers conceptual scaffolding, linking intangible conditions of light to more familiar conditions of water. Moreover, the light-water analogy is a rhetorical device provides distinct language and a fuller expression of light and place.

Conclusions

This research was initiated by the epiphany that many writers have an extraordinary command of light, often using sublime language to render a notable moment, be it an environmental condition or human experience, or combination of the two. Their insights can by leveraged by architectural designers to expand mental constructs and language as they grapple with the potential of light in their creative processes. Further work might probe deeper into the phenomenological in an attempt to better understand the fleeting occurrences of light and being. Additionally, creative research can explore many ideas initiated by the light-water analogy including spatial vessels of light; light eroding spatial mass; and the luminaire as a distributor of light.

Acknowledgments

Much appreciation to four exceptional students who contributed to this project: Jose Camacho, Lue Huang, Allison Taylor, and Candie Wilken.

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