



Light & Shadow: A chandelier as a walk through the forest

Design by Wim aan de Stegge

Text by Pieter Desmet

Light in the darkness

On New Year's Eve 1813, Londoners witnessed an historic event. That very evening, the state-of-the-art gas lighting of Westminster Bridge was first lit. New ground had been broken, with light in the city at night! This momentous occasion was to be the launchpad of a structural transformation in the appearance of urban areas. By 1900, gas lighting had reached almost every city in Europe and North America. However, even faster than its emergence, the gas light disappeared again from our streets and houses. The reason for this no secret: the invention of the cheaper and safer electric light. Nowadays, we can no longer imagine life without the omnipresent cheap, safe and effective light that comes from electricity.

Light and Shadow Design

Conventionally, a lighting designer begins with the following question: how can I create the best possible light quality given the possibilities of the light source? However, with the evolution of modern LED technology, these possibilities are now infinite. Virtually any colour



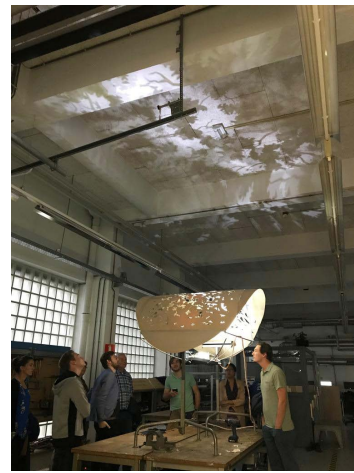
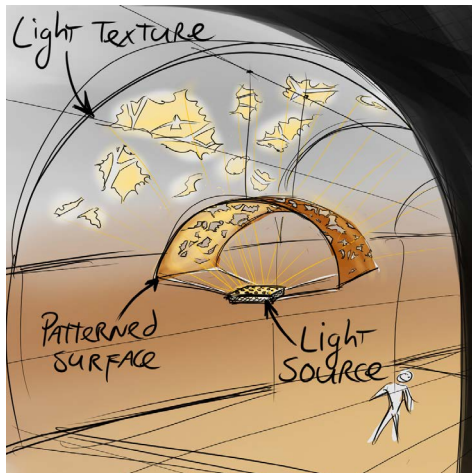
Light textures in nature

and light effect can be created, including movement and other forms of dynamic expression. Even shadows are no longer just a side effect of lighting; in dynamic light textures they are an integral part of the design. This fact inspired designer Wim aan de Stegge to develop a wellbeing-driven lighting design. The result is a chandelier that makes a sophisticated connection between the building and its surroundings. (Aan de Stegge, 2020).

Nature as a Human Necessity

The American biologist Edward Wilson introduced the idea that people have an innate connection with the natural environment (Wilson, 1984). He launched the “biophilia hypothesis”: the inherent human need for life forms and other natural ele-

ments. Biophilia is stroking the cat, walking barefoot in the grass, an office overlooking the park, and flowers in the house. Fulfilling this need has many positive effects on well-being. For example, the presence of plants in hospitals has been shown to reduce depression and pain in patients, improve mood, and accelerate recovery (for an overview, see Soderlund & Newman, 2015).



Design sketch and prototype

Biophilic Design

Social ecologist Stephen Kellert (2008) translated the biophilia hypothesis into a series of design principles: biophilic design with the aim of strengthening man’s connection with his natural environment. Wim was inspired by the two core principles: naturalism and place-attachment. Naturalism is the integration of natural elements in man-made designs. This may either be direct (with daylight or views of natural elements), indirect (with cultivated nature such as pot plants) or symbolic (with representations or images of nature). Place-attachment is the connection between the built environment and the local ecology; the relationship between a building, mankind, and the environment.

The Biophilic Chandelier

Wim designed a chandelier for the Hoge Veluwe Park Pavilion in Otterlo. The chandelier projects a dynamic light texture onto the vaulted ceiling of the visitor centre. The chandelier combines a powerful LED matrix as a light source with a curved surface that has been laser-cut into a pattern. Dynamic lighting effects are created by means of video material from the natural environment. The light texture connects the architecture with the surrounding nature park. The play of light and shadow gives the experience of walking on a forest path with the foliage of the trees as a vaulted ceiling. Wim deliberately chose an abstracted pattern. It is therefore not a literal projection of foliage but a symbolic representation. This makes branches and leaves recognisable, but at the same time the light also enters into a logical relationship with man-made architecture.



The Design Integrated in the Hoge Veluwe Park Pavilion (photos by Stijn Bollaert)



The Design Integrated in the Hoge Veluwe Park Pavilion (photos by Stijn Bollaert)

Science and Intuition

For Wim, the project was a personal quest for a good balance between knowledge- and intuition-driven design: “As a designer, especially in the field of lighting, I have to embrace my intuition. That is not to say that science has no value in my design process, quite the contrary! However, reality can never be completely captured by the rules of a scientific model, and where science ends, I have to use my intuition”. With this combination, he created

a convincing form of poetic technology. Two centuries ago, the revolutionary gas lighting of Westminster Bridge represented a victory for mankind over the limitations of nature. The biophilic chandelier embodies a new significance for lighting: light as a connection between the artificial and the natural. And so light and shadow have definitively gained a firm foothold in the positive designer’s repertoire.



In 2020, Wim aan de Stegge (photo) researched the concept of biophilic light patterns as a thesis project for his *Integrated Product Design* master’s degree. He conducted his initial research in association with Signify. He applied insights from this research to Beersnielsen Lichtontwerpers’ chandeliers for the Hoge Veluwe Park Pavilion (Otterlo). The supervisors were Sylvia Pont and Erik Jepma (TU Delft), Laura Taylor (Signify) and Sjoerd van Beers (Beersnielsen). The design won a DARC and LIT lighting design award in 2019. Wim is currently working as a lighting designer at Mandala, a lighting design studio in New Delhi. Thanks to Beersnielsen for providing the photographs of Stijn Bollaert.

References

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Colophon

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Reference

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