

Nouveau Pulsation - 100 Years of Craft Evolution: From Art Nouveau to Digital Pulsation

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This paper collapses 100 years between the intense deployment of ornament during the Art Nouveau period and the contemporary flourishing of ornamental, rhythmic production through digital design and fabrication, speculating on the renewed potential for modulation systems to generate novel architectural tectonics and spatial effects. There is a complex and historical interrelation between ornament and techniques of architectural design and production that connects the turn of the 20th and 21st centuries. Ornament is considered here as the ultimate product of rhythmic perception, a locus for fecund architectural exploration.

LINEAGE OF RHYTHMIC AUTONOMY: ROSALIND E. KRAUSS: "PULSE" AND "MOTEUR!"

The lineage of rhythmic perception can be traced back to the essay "Pulse" by Rosalind E. Krauss where she approaches the description of a new sensibility, a kind of beat awareness or perceptual field of rhythmic effects. Krauss explains how the flicker film was invented to stop time, to disable the afterimage's perceptual mechanism by means of which the visual "persistence" of information contained in one film frame would bleed into the next, creating the illusion of an uninterrupted flow of movement. This stoppage, the reasoning went, would make it possible to look past the illusion and actually "see" the basic unit of film, the real support of the medium: the single frame.

"But though the rapid-fire alternation of black and white, or black and image frames, can break the flow of motion, it cannot turn off the afterimage, which is produced by the viewer all the same. This phenomenon is even heightened, one might say, by the fact that the afterimage—projecting itself onto

the visually 'empty' spaces provided by the flicker's intermittencies of black leader—now has a place to exist within which it can be experienced as the ghostly counterpart to the passages of filmic representation. What we 'see' in those interstitial spaces is not the material surface of the 'frame', nor the abstract condition of the cinematic 'field', but the bodily production of our own nervous systems, the rhythmic beat of the neural network's feedback, of its retention and protention, as the nerve tissue retains and releases its impressions."

This close reading of the effect of the flicker film applies very well to the sensations oozing from pulsating rhythms in the articulation of surfaces in architecture, energized by the sensations surging from an increased awareness of detail within a sensibility of topological tectonics; rhythmic effects accentuate the afterimage of detailed ornament as a trace, an index of activity registered upon architectural membranes that denote spatial transformation and difference.

What seems to drive the repetitive pulse of one organ dissolving into the image of another is a sense of the erosion of good form, an experience in the grip of the devolutionary forces of a throb that disrupts the laws of form, overwhelms them, that scatters them.

THE PULSATILE QUALITY OF ORNAMENTAL SYSTEMS

Over the last ten years of architectural production, an outstanding flourishing of ornamental production has emerged through digital design and fabrication, leading to speculations on the renewed potential for ornamental systems to generate novel architectural tectonics and spatial effects. According to Bataille, in the deeper structures of the material universe,

there exists only excess. Ultimately, just how this surplus is understood, and more importantly, expended determines a specific economy's successes and failures. Pulsating architecture generates and distributes such matter in excess, which assumes the form of innate ornament and augments the awareness of the beat that articulates space.

"On the surface of the globe, for living matter in general, energy is always in excess; the question is always posed in terms of extravagance. The choice is limited to how the wealth is to be squandered..." Architecture's interest in an economy of excess begins with the writings of Georges Bataille and his economic treatise, *The Accursed Share*. In this text Bataille presents a general problem of energy flowing upon the surface of the earth, all of which gets tracked back to the sun. According to Bataille solar energy is the source of life's exuberant development. The origin of wealth is the sun, which dispenses energy –wealth- without any return. The sun gives without ever receiving.

"The living organism, in a situation determined by the play of energy on the surface of the globe, ordinarily receives more energy than is necessary for maintaining life; the excess energy (wealth) can be used for the growth of a system (e.g., an organism); if the system can no longer grow, or if the excess cannot be completely absorbed in its growth, it must necessarily be lost without profit; it must be spent, willingly or not, gloriously or catastrophically."¹

Bataille's ideas are important for architecture as they provide a new lens to look at the difficult tensions between material efficiency and aesthetics, between cost and meaning, technology and program, all of which are formulated in terms of scarcity and suddenly they have to be rethought in terms of excess. Much like the infinite diversity of expression in the natural world, contemporary digital practices consider the emergence of exotic expressions and ornament as a direct consequence of a shift from an economy of scarcity to an economy of excess, where the ethic of machinic efficiency (elimination of anomalies) is replaced by an ethic of eco-effectiveness (cultivation of diversity) and an intensive investment of atmospheric, ornamental effects.

ORNAMENT AS MACHINIC, RHYTHMIC AGGREGATION

Lately, we can speak of an authentic resurgence of ornament in architecture; the debate about this

subject is omnipresent in the built work, the exhibitions and the specialized literature. It is worth asking whether it is a passing fashion or if ornament has come back to regain its function as architectural expression. The veto to ornament declared during the 20th century seems to be an overcome crisis. To this effect, Charles Jencks in 1977 described the present situation:

"It can be anticipated with certainty that the ornament will proliferate again, liberated from its guilty and criminal connotations, to continue developing its traditional role. This role is not limited only to the symbolic functions, already pointed out by Venturi, but also to the functions of aesthetic order, and more importantly to the functions of providing scale, depth and proportion to the big bureaucratic monoliths; to create variations on a theme, so that they appear and resonate throughout different parts of a building giving it unity; to animate and enliven an otherwise dull surface and lastly, to accentuate the atmosphere of a space much in the same way that salt and spices highlight the flavors of food".

The austerity of Modernity, the near-superstitious rejection of ornament in accordance with the imperious logic of the machine, has provoked unease, a certain hunger and anxiety whose cause we can identify only vaguely. For example, we perceive an oscillation and hesitancy that moves styles towards extremes: one organic, exuberant in form; and the other where form is subjected to the most exacting rigor. The two inclinations are complementary, not necessarily mutually exclusive. It is possible to follow both, and not only in turns, but simultaneously.

Even though it has become common to interpret the alternative between industrial production and representation in stylistic terms, such an understanding can be misleading, since it assumes that architectural solutions to economic requirements have their own style, the modern style. The question, therefore, concerns the alternatives to this division between production and representation, which in some ways is also an extension of that between modernity and tradition. How can design utilize the opportunities of industrial production so that practice of architectural representation is neither independent of nor subjugated to the domination of technology? In the last few years, many architects have been instrumental in exploring some of the emerging terrain engendered by digital architecture; parametric design and generative-component design have also produced a whole repertoire of notions about skinning, evolving and fabricating architecture. Digital production is a

generative medium that comes with its own host of restraints and possibilities. Digital practices have the potential to narrow the gap between representation and building, affording a hypothetically seamless connection between design and making, by means of digital fabrication.

PULSATING ORNAMENT, NOW AND THEN

The computer has been the fundamental catalyst of the development of contemporary ornament. Ever since the 90's, the digital technology has had an increasingly influential role in the production of architecture. This influence can be found in the field of projects as well as in the digital production and execution of the architecture itself.

The critique of Adolf Loos expressed in "Ornament and Crime" was based largely in moral, socio-cultural and economic reasons. The advances on the application of new technologies to the generation and production of architecture have minimized the economic issue: the present ornament does not waste material or work force: a CNC-directed robot is capable of producing a large number of unique pieces or many identical pieces. The current technology offers architects new tools for expression. Superseding of the distance between the project architects and contemporary production methods is one of the premises of the digital ornament. The architect must dominate the language of the digital processes in order to express himself through them. Therefore the quality of the digital ornament is established when there is a dialogue between the premises, the context and the ornament itself, resulting in more complexity and depth. If the ornament is the condiment that has come back to claim its place in architecture, we must reeducate our taste buds, which may be atrophied after a century of disuse; frits, laser-cut sheets, glass tubes, pleated floor plates, perforated screens, complex tiling, and structural patterns are some examples of our contemporary ornaments.

Pulsation generates ornamental effects that are not ad hoc, they are inherent to the rhythmic forces that activate dynamic changes in space, reflecting mutations and transition which get indexed on the tectonic connections within the range of topological geometry. It is not about décor. Contemporary architecture design effectively relates to culture by creating sensations and affects.² Digitally-generated

buildings produce affects that seem to grow directly from matter itself. They build expressions out of an internal order that overcome the need to "communicate" through a common language, the terms of which may no longer be available. It is paradoxically in this way that building expressions remain resilient in time. These affects, operating through direct sensations, bypass the need for the codification of language and are able to shift across space and time. They may produce indirect analogies, but their primary purpose is to render the invisible forces in contemporary culture visible.

Contemporary ornaments reveal an in-built sense of order, a consistency against which we can test our experience. The dynamic nature of culture requires that buildings each time define their own ground and develop an internal consistency. It is precisely through these internal orders that architecture gains an ability to perform relative to culture and to build its own system of evaluation. These orders are not therefore about "pure architectural expression", removed from culture, of the kind that was dismissed by postmodernism. They are not about being pure, but about being consistent. They do not aim at being disconnected but, rather, contaminated with culture. Louis Sullivan proposed such a need for consistency and organicity in building expressions.³ In Sullivan's buildings, this organicity leads to ornament that grows from the material organization and is inseparable from it. Ornament is the figure that emerges from the material substrate, the expression of embedded forces through processes of construction, assembly and growth. It is through ornament that material transmits affects. Ornament is therefore necessary and inseparable from the object. It is not a mask determined *a priori* to create specific meanings (as in Postmodernism), even though it does contribute to contingent or involuntary signification. Decoration is contingent and produces "communication" and resemblance. Ornament is necessary and produces affects and resonance.⁴

THE EXPANDED CRAFT OF ORNAMENT, FROM 2D TO 3D: ART NOUVEAU'S EVOLUTION INTO DIGITAL PULSE

Ornament, rhythmic awareness and new modes of craft triggered the concept of "Nouveau Pulsation", a continuum of rhythmic geometries that brings together design sensibilities of two different, but intricately connected eras. The focus of Digital Nou-

veau is to highlight the shifting terrain of craft and ornament, as it has evolved from the 1900s until the present time. The comparison seeks a critical analysis and integration of a continuum of design production of 2 intense periods of approximately 15 years each, both of which articulated important transitions spanning 100 years, connecting the early 20th century with the early 21st century and the future. The perfect form -that which is found in nature- the same one humans have constantly imitated, emulated both consciously and unconsciously, was the source of inspiration for those who set themselves apart from the eclectic Beaux Arts principles, and who generated a unique aesthetic movement deriving on the manipulation of form beyond the ornament for the sake of ornament, a movement uniting technique, formal complexity and the sinuous pleasure for the visual: the organic form allows for nature to become architecture. This is the heritage rescued from the eclipse of Art Nouveau under the dogmas of the International Style. If today we cannot plainly 'reproduce' the process of Art Nouveau -given that industrialism killed the craftsmanship in which it relied so heavily, we can again establish the links between that moment of creation and a new moment of post-industrial and post-production aesthetics: The one generated by a unique object reinterpreted through numeric operations, straight from the database model, which can be reproduced at specific instances through digitally driven techniques. From the point of view of the production of form and intense focus on ornament, the similarities between the 2 periods are outstanding, and the following are some of the shared characteristics:

Flow and pattern as derived from organic models; deep ornament as pulsating rhythm; exuberant curvilinear geometry; intricate connections; holistic ambiance; immersive space; synthesis and integration of art + architecture via technique; movement as generative principle for design.

2D – A NEW SENSIBILITY OOZING FROM ART NOUVEAU'S IMMERSIVE ATMOSPHERES

The aim of the artists of the Art Nouveau was two-fold: they wanted to avoid the endless repetition of earlier styles and subject matter, and they wanted to create a style which could shape the environment. They felt that this could be achieved by the synthesis of all the decorative arts.

The single characteristic of Art Nouveau which distinguishes it from any other style is that it makes the decorative elements autonomous within the work of art. In traditional styles of painting, architecture and the applied arts, formal, representational and emotional values had always overwhelmed decorative elements, while the Art Nouveau style attempted to liberate pure visual appeal from the restraint of meaning. The freedom from what might be called wholly iconographic or practical considerations emerges most strongly in the Art Nouveau artist's use of line. In almost every example of the style there is a stress on the decorative values of floral motifs, arabesque and whiplash lines or complex linear rhythms. In Art Nouveau it is the content of the work of art which follows the dictates of line. The evocative force and symbolic quality of line was used by Art Nouveau designers to convey rhythmic energy and organic growth. Line became delicate or aggressive, flowing, curving, undulating, rippling, dynamic. "Line is a force which is active like all elemental forces", wrote Henry van de Velde. The rhythmic, convoluted line pulsating with movement is the ultimate arabesque motif of the Art Nouveau.

Art Nouveau is essentially a two-dimensional ornamental style that explored the possibilities of line and the forms which they describe, rather than perspective and depth. Applied to architecture, it created the demand for the style to acquire body and substance and become three-dimensional. But many architects gave their details a flat and linear treatment, while expressing the flowing forms cherished by Art Nouveau in their plans. In Art Nouveau architecture the emphasis was on designing all the elements of an interior to produce a harmonious coherent unity, and the design process often began on the inside and then worked outwards. Clear distinctions between floors, walls and ceilings were minimized by the unity of the design; structural elements are undisguised, although their ornamental possibilities are exploited to gain the maximum effect.

August Endell recognized the abstract implications of the new style. He wrote: "We stand at the threshold of an altogether new art, an art with forms which mean or represent nothing, recall nothing, yet which can stimulate our souls as deeply as the tones of music have been able to do." The architecture of pulsation inherits this sense of formal autonomy, abdicating the prevalence of programmatic narratives and privileging the production of

atmosphere and mood effects as catalysts for the engagement of the senses.

Gabriel Esquivel established a link between the flowing forms of Art Nouveau and their connection with a fascination of Art Nouveau architects with the discovery of cinema, which unleashed energy pertaining to the exploration of motion in design, a precursor to Antoine Picon's observation of performative effects in contemporary, digitally driven design.

"The condition of motion is explored in many architects of the Art Nouveau, the interaction of two dimensional patterns with three-dimensional ornamentation and objects like in the Tassel Hotel by Victor Horta, the undulating interiors by Henry Van de Velde, the potential of the use of new materiality like the Metro Stations by Hector Guimard. These projects all amount to those conditions of how form, pattern and ornament produce the sensation of motion."⁵

3D - THE PULSATING FLOW OF RHYTHMIC AGGREGATION

Digital architecture has changed the way in which space is conceived. It is impossible to think of design and mathematics as separate terms after the advent of digital design into architecture; calculus is embedded in the operations that gave rise to a new way of performing in design. The digital field employs its calculating power to produce an extensive array of formal manipulations, at the same time the digital environment transforms the understanding of the object by collapsing the vertical and horizontal. By simultaneously rendering plan, section, elevation and perspective, the three-dimensional device enables analysis and object to become congruent. The computer does not represent anything; rather, it "engenders". It is a technical apparatus that inserts a generative mechanism, it is a technique. This approach to design through technique has transcended the problem of representation and has evolved an effective set of design tools.

Contemporary technological practices employ scale-less techniques that can be applied equally well to the design of products and cities, whereby details are retained from the largest to the smallest scale; ornamental, digital design strategies operate across different scales and contexts –from the molecular scale of materials to the scale of the body, from the dimensions of a detail for a building to those of the city. For contemporary digital design the rhythmic proliferation and deployment of adap-

tive modularity serve as tools to construct mat-like configurations or ornamental patterns. Joinery understood as the opportunity to engender and transmit spatial rhythm is critical to the production of this kind of architecture, giving way to an understanding of interstitial space both internal to the tectonics of the membranes as well as on their articulation of existing voids and urban linkages. Such rhythmic activity of animate forms is translated to architectural systems as "pulsation".

Digitally driven design aims at pulsation, a fundamental animate capacity of living forms. Pulsation thrives on hyper-charged, syncopated rhythms and vital drive. It operates via smooth aggregation of discrete, holistically articulated components. The effect of repetitive modules is mitigated by gradient transformations that distribute constraints of program, scale and materiality throughout the spaces of a project. Occasionally, accumulation and multiplication- both of which may be hard-wired into us -overcome convention and carry you away. Multiplication connects us to infinity which connects us to our desire for it; repetition is reassuring, terrifying, and mysterious all at once; it is difference repeated within such narrow strictures that it opens new possibilities. At its best repetition conjures what Baudelaire called the "sacred machinery", and often times when configurations are fashioned from hundreds, thousands, or even millions of similar things, repetition turns metaphysical, obsession and process become transcendental.

CONCLUSION: NOUVEAU PULSATION AS GENERATOR AND BRIDGE BETWEEN ORNAMENT AND RHYTHMIC AFFECT

Contemporary digital practices and Art Nouveau share an interest in the spatial and aesthetic capacities of rhythmic affect coupled with ornamental form. In the Art Nouveau, the intersection of construction techniques and the inspiration born from nature, created the intellectual nest of a unique sense of craftsmanship, one which rebelled against the Beaux Arts establishment. Deep changes in society reflected these tendencies and allowed for revolutionary techniques: a new order, a new way of looking at the *object d'art*, just as Horta and Guimard did. If we translate their aesthetic vision to today's realities, we'll find the interface of aesthetic creation, the intuition of the designer to test and probe new and experimental methods, the desire to represent and

test their fabrication, through various techniques of representation and prototyping. Just as in Art Nouveau, the interface is located in the mind of the designer, but in Nouveau Pulsation the interface moved prosthetically to the 'double' mind of the Nouveau Pulsation designer, and the holistic view of architectural design embraces a range from architecture to product design, to cities, to structural systems.

The architecture of pulsation celebrates duration, enhances our awareness in terms of time-passage indexed in the form; for Bergson duration is the continuous progress of the past which gnaws into the future and which swells as it advances. Duration involves a process of repetition and difference, it is irreversible since consciousness cannot go through the same state twice; we cannot live over and over a single moment. The notion of duration is embedded in rhythmic, throbbing, vibrating strategies for the

articulation of membranes which extend the tectonic qualities to the spatial experience; a multitude of synchronized components that radiate micro-alliances between parts, distributing ornamental patterns that give character and atmosphere to the architecture.

Through these interpretations of the relation between rhythm and ornament, we are assisting to the renaissance of an aesthetic based both on the mimicry of nature and the ability to put together a new spatiality, where Art and Craft are mediated by Software parameters, where the human hand has been replaced by a digital extension on a new range of performances, dictated not by the X and Y space, but by a field where the eye acts as if it were a hand, not as a receptive but as an active organ, and what is at hand is always nearby and close, without any sense of depth or perspective, and without background or horizon. Such is the Nouveau Pulsation.

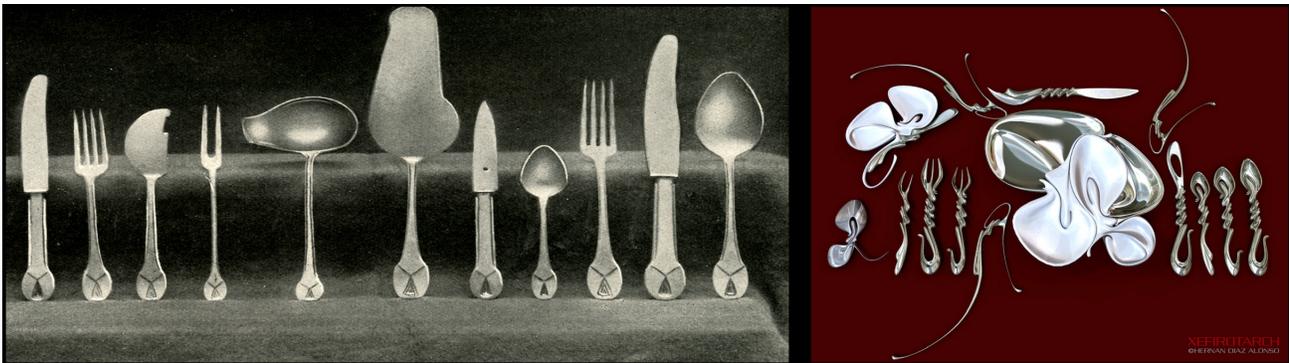


Figure 1. Left: Henry van de Velde – Cutlery set

Figure 2. Right: Xefirotarch/Hernan Diaz Alonso – Cutlery set

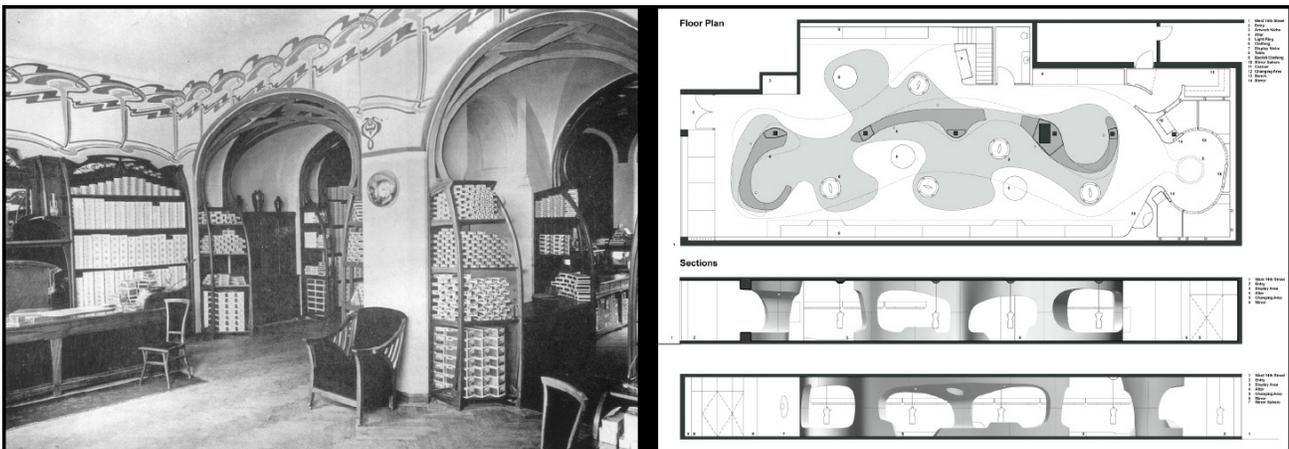


Fig.3. Left: Henry van de Velde – Havana cigar store, Berlin

Fig.4. Right: Asymptote Architecture – Carlos Miele store, New York

ENDNOTES

- 1 I refer here to George Bataille's distinction between general and restricted economies in *The Accursed Share*, vol.1, Trans. Robert Hurley (New York, Zone Books, 1991), p. 19-22
- 2 For a definition of art as the creation of sensations and affects, see Gilles Deleuze and Felix Guattari, *What is Philosophy?* (New York, Columbia University Press, 1994), esp, Chapter 7, "Percept, Affect and Concept", p. 163-200; Gilles Deleuze, *Francis Bacon: The logic of Sensation*, Trans. Daniel W. Smith (Minneapolis, University of Minnesota Press, 2003), esp. Chapter 13, "Analogy", p. 91-99
- 3 See Louis H. Sullivan, "Ornament in Architecture" in *Kindergarten Chats and Other Writings* (New York, George Witterborn & Co., 1947)
- 4 See Farshid Moussavi, "Ornament as Contingent: décor and Communication" in *The Function of Ornament* (Barcelona, ACTAR, Harvard university Graduate School of Design, 2008), p.3-4
- 5 Gabriel Esquivel, *Affect and E-Motion* (MX Design Conference, Form + Desire: <Linked Projects> potencial, Universidad Iberoamericana, Santa Fe, Mexico City, Mexico, 2007), 3-4.