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Rudolph ARNHEIM

**The power of the center : A study of composition in the
visual arts. 20th anniversary edition.**

University of California Press. Berkeley. 2009

Reviewed by Giovanna Costantini

Arnheim marked the twentieth anniversary of his *The Power of the Center: A Study of Composition in the Visual Arts* with an entirely rewritten version, one that offers a more systematic analysis of what originated as a semi-improvisational study of universal principles of composition based in phenomena of perception that he set forth in *Art and Visual Perception*. *The Power of the Center* explores more fully the subject of composition, the schema of visual organization that springs from a foundational base of human functioning to be understood as an ordering principle. Conceived in the earlier book as gestalt simplicity, the second edition of Arnheim's *Power* differs from the first in advancing his argument from the primary features of salient artworks to the analytic resources of psychology rather than the other way around. He takes as his underlying thesis a belief in the power of compositional devices to elucidate the human condition epitomized by the interaction of *centric* (gravitational) and *eccentric* (dynamic) tendencies. His book argues that pictorial composition provides evidence of the innate and twofold action of all beings: human freedom that is aimed at overcoming resistance to weight also realized as the tension between the generating core of the self and the interaction

with other social centers. He compares this human condition to the activity of birds and insects “flying through the air to display their triumph over the impediment of weight,” with motion the “privilege of living things,” (dead things immobilized by their heaviness).

While Arnheim’s text is comprised of numerous geometric configurations of horizontal and vertical surfaces as axiomatic structures, his existential musings on the intrinsic significance of their spatial and kinesthetic effects provide stepping stones to deeper existential musings, many embellished with eloquent poetic metaphors: “I feel like a mere husk,” he writes on gravity, whereby the “surrender of the self’s prerogative as a center puts the person...at the mercy of eccentric outer powers.” One section compares the axes of a diagram to the branches of a tree or the arms of a person’s body, wherein he notes that the center “breaks up the unity of the horizontal bar and transforms it into a pair of symmetrical wings,” with the vertical [bar] barely acknowledging the crossing. In another passage on the attraction exerted by secondary centers, we are “invited to sense the particular kind of equilibrium into which the partners of the action have settled.” Further on he laments quite purposefully the loss of the Temple of Vesta’s original crown, reducing it to a “flimsy replacement” with Corinthian columns that move skyward “all but flipping off the makeshift cover of the roof.”

The body of the text is given over to documentation in the form of chapters that detail such subjects as various types of optical centers (mid-points, mandalas, isocephalist arrangements); implicit, geometric and dynamic centers; eccentric foci, visual weight, energy fields and directional vectors. He considers frames, enclosures, and referents beyond the frame as well as compositional divisions, borders, picture-boxes and prosceniums. Representational formats such as the tondo and the square are shown to be models of radical centricity, duality and cosmic symbolism. Extending a discussion of Michelangelo’s *Donni Tondo* to the geometry of the circle in Constructivist and Suprematist abstractions by such painters as Moholy-Nagy, Lissitzky and Rodchenko, he compares attributes of roundness and symmetry to holistic coordinates of a stabile and timeless universe.

Among the dynamic constituents of visual hubs he includes spirals, intersections, crossings and bridging devices, bipolarities, estrangements and separations. The “curious tension” created dynamically by the spatial arrangement of figural groups in Picasso’s *Family of Saltimbanques* (1905-6), for example, results in the centric symmetry of two inverted contradictions: functional detachment counteracted by physical contact, and functional

attraction overcome by physical separation. But reaching past both groups is a strong eccentric vector that encompasses the whole to move beyond the confines of the frame in the directional glance of all but one of the subjects. He interprets such an arrangement to express “a spiritual longing that transcends the episodic genre scene of the strolling acrobats.”

To those schooled on Winckelmann, Arnheim’s diagrammatic analysis of a selection of predominantly Western European artworks in terms of volumes and nodes, vectors and projections, reflects a formalist canon based on assumptions of noble simplicity and Cartesian attributes of stability and instability. Add to this an overly formulaic treatment of perspective systems, vanishing points, frontal planes and illusionistic renderings in painting very much akin to John White’s classic *The Birth and Rebirth of Pictorial Space*—comparisons further justified by a reliance on (implicitly metaphoric) Renaissance imagery.

Yet a more incisive line of questioning would challenge the scope of Arnheim’s investigation in terms of his own parameters. He inquires at the outset whether compositional schemata operate at so high a level of human complexity that differences in compositional approaches outweigh the similarities he has outlined. He returns to this question by alluding to other objectives of artistic enterprise to which his analysis is not applicable: i.e. reproduction, political statements, personal self-expression, commerce and popularity. To the twenty-first century, such omissions have come to be encompassed by the body of post-modern criticism and theory that in some ways constitutes a seismic paradigm shift based in semiotic and deconstructive criticism, gender, post-colonial and other cultural studies whose multi-dimensional challenge to notions of centrality are tantamount to a Copernican revision of Ptolemaic cosmology.

Though Arnheim stops short of extending the significance of his theories beyond empirical evidence, he alludes to the broader implications of concentric symbolism to cultural studies as a whole: “Our terms have profound philosophical, mystical and social connotations, undoubtedly pertinent to the full interpretation of works of art,” he reckons. Referencing art historian Hans Sedlmayr’s phrase “the loss of the center” as a denunciation of modern civilization, Arnheim reasserts the formalities of composition as evidence of the powerful equilibrium that permits us to perceive in an object “an order that suggests purpose.” Thus the reissuance of Arnheim’s *Power* takes on special meaning to a complex force field in which composition provides the structural skeleton of a work’s essence in an eternal balancing act. It reminds us, perhaps even more emphatically, of the poise required of aesthetic judgment as the great world spins.

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Roger T. DEAN

The Oxford Handbook of Computer Music

Oxford University Press, USA, 2009

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In the introduction to this edited *Handbook*, Roger T. Dean's statement, that this is an "exciting moment in computer music history", is certainly borne out throughout the pages of this book. The recent surge in developing technologies including machine learning and extended/networked performance has afforded the digital arts an authorship and robustness not previously experienced. These practices are contextualized here alongside an examination of both contemporary and historically expanded, electronic performance, practices and theory.

The authors, the majority of whom are leaders in their respective fields, have afforded the book an excellent history and overview of the subject, including a "Chronology of Computer Music Events" which would be very useful for anyone interested in the development of this established practice. The chronology catalogues technological events in alignment with significant "musical" and computer music events. In this way it establishes the interdependency of the technological to the conceptual in the practice of making, fundamental to the majority of the digital arts. However, what is interesting about this book and what marks it as significant in the field is its emphasis on an underlying and developing philosophy with particular regard to creative and performance modes.

The book is set in five main sections: Part 1, "Some Histories of Computer Music and Its Technologies," Part 2, "The Music," Part 3 "Creative and Performance Modes," Part 4, "Cognition and Computation of Computer Music" with a subsection, "Sounding Out" and Part 5, "Cultural and Educational Issues".

Douglas Keislar opens Part 1 with “A Historical View of Computer Music Technology,” in which he gives a condensed overview of computer music in configuration with electronic and electroacoustic music. This covers a detailed examination of the tools, digital and electronic for the performer/composer in multimedia and extended performance. These are contextualized through the work of Max Mathews, the pioneer of computer music. Using Marshall McLuhan’s “extensions of man”, in which a technology extends the reach or power of human faculty” he begins with the concept of the computer as an evolutionary development that “culminates the process of disjunction or ‘amputation’ from the body that was begun with the instrument.” The advancement of these extending tools and the increase of immersive and experiential sound environments are seen as a rich and temporary disjuncture, it’s benefit being a flow of human energy spreading “beyond the body into the world.”

“Gesture and Morphology in Laptop Music” by Garth Paine in Part 3 presents ‘The ThuMP’ (Thummer Mapping Project), which analyzes data sought from musicians to form a computer music performance interface that seeks to re-connect the intimacy of the computer-instrument/interface to the musician and in turn to the audience. Paine considers Don Ihde’s post-phenomenological philosophy of “embodiment relations” and draws on experiential and extended performance modes.

Chapter 15 “Algorithmic Synesthesia” by Noam Sagiv, Roger T. Dean and Freya Bailes. Recently, the work on neurocognition and synesthesia most notably by E.M. Hubbard and V.S. Ramachandran has advanced our understanding of the human sensorium. Here the convergence of perception is investigated at a neuronal level, where unimodal activity in the brain becomes multimodal through the simulation of other senses.

There are many other areas of great interest throughout the book, Geraint A. Wiggins, Marcus T. Pearce and Daniel Müllensiefen, discuss the significant research they are undertaking at Goldsmiths College, London on computational modeling and cognition. The use of sensors and spatialization in sound and performance are explored in the chapter “Sensor-Based Musical Instruments and Interactive Music” by Atau Tanaka, and interactive dance modes by Wayne Seigel and there is also a fascinating investigation of the role of the voice in, “The Voice in Computer Music and its Relationship to Place, Identity and Community” by Hazel Smith.

The chapter by Pauline Oliveros, in “Electronic Sound Performance,” maps the technological developments Oliveros has established over the last 50 years, an important reminder that complexity and innovation continue to thrive outside of

the digital.

One of the overarching themes of the book is the level of autonomy afforded to musicians and artists in building computer models and interfaces for human musical composition, experimentation and performance. Whilst this is a technological advance, it is also philosophical. In creating models based on complex biological systems we broaden our understanding not only of the world and our experience of it but also unlock levels of complexity and the “ability to compose autonomous artificial universes that generate original aesthetic experiences”.

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Phillip Prodger

Darwin's Camera: Art and Photography in the Theory of Evolution

Oxford University Press, London, UK, 2009

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The idea that context is an important component in both the presentation and nature of empirical studies became popular at the end of the twentieth century and is often considered an outgrowth of Kuhnian paradigms. With the elevation of paradigmatic perspectives, however, came the quandaries of what contextual research “means” in practice. Precisely how does the creative mind make the leaps that take us from one way of seeing (and “being in”) the world to another? Case studies, such as Phillip Prodger’s recently released *Darwin’s Camera: Art and Photography in the Theory of Evolution*, offer an opportunity to come to terms with this dilemma as we consider a creative mind at work and walk in the shoes of an innovator. Indeed, the importance of context is a defining theme of

Prodger's study, in which he examines Darwin’s strategies for illustrating his books, his interest in art, his studies of book illustrations related to expression and this scientist’s overall approach to the *Expressions* project, a component of theory of evolution. As the book outlines the progression of Darwin’s thinking, the reader perceives how this scientist played with ideas, technologies, and information to bootstrap the details of his presentation and, in doing so, made visual artifacts an effective part of his toolbox. More broadly, Prodger shows that when we sequence historical exemplars associated with key moments we can visually weigh how our understanding of the world changes from era to era.

He also explains that images are a legitimate form of documentation in analyzing the problems thinkers faced, evaluating the evidence of how innovators solve the technological limitations at each stage and defining the elusive process of creative accomplishment overall.

More specifically, *Darwin’s Camera* proposes that Charles Darwin revolutionized the use of photography in science with his publication of *The Expression of the Emotions in Man and Animals* in 1872, building on three separate but related traditions: physiognomy treatises, passion manuals, and anatomical studies. Toward this end, the book demonstrates that Darwin was looking for pictures at the threshold between what could be seen with the unassisted eye and what could be seen only photographically. While what he

wanted became routine a decade later with the invention of speedy gelatin dry-plate chemistry of the kind used by Eadweard Muybridge (1830-1904) and Étienne-Jules Marey (1830-1904) (to analyze the gaits of galloping horses and motion), it was more of an aspiration in Darwin's time. [Coincidentally, one of the photographers Darwin worked closely with, Oscar Rejlander (1813-1875), experimented with sequential imagery for the Darwin project, but was unable to produce sequential pictures suitable for his purposes.]

While *Darwin's Camera* does a splendid job in conveying how the images Darwin used offered insights on multiple levels, what sets the book apart is that when Prodger shows how Darwin used photography scientifically in presenting his theory of expression, he compels the reader to think about what we mean by evidence, illustration, and objectivity in a larger sense. Taking us through Darwin's effort to find suitable prints for the scientific study, Prodger reminds us that *Expressions* was produced at the cusp of a change in attitudes toward photography. One reason the time frame is important becomes clear at the end, when the author directly turns to questions about "evidence" and "illustration" in relation to Darwin's work. Taking on some researchers (e.g., MaryJo Marks, Carol Armstrong and Jennifer Green-Lewis) who have criticized Darwin for fabricating gestures and scientific positivism, Prodger explains that these critics are anachronistic because they apply current views of photographic objectivity to Darwin's work, rather than understanding the mind and technology of his age. Darwin, of course, wanted his readers to find his photographs convincing. Yet, as Prodger argues, the distinction between "evidence" and "illustration" is blurred in *Expressions* because there was no precedent for the use and acceptance of photography as scientific data. There was no protocol for the use of empirical photography, precisely because photographers often found it necessary to manipulate their work to enhance not only the visual appeal but also to add clarity to their images. Indeed, this urge toward clarity and the perspective Darwin brought to his work may have derived from the ethos of drawing for scientific illustration, since drawings have an inevitable degree of interpretation, however objective the artist may attempt to be.

One of the most potent aspects of the study is its sensitivity to the artistry of scientists and the methodology of art in the nineteenth century. Prodger provides a particularly compelling window through which to ponder cross-disciplinary problem-solving and, in this respect, *Darwin's Camera* is remarkably unlike and yet curiously similar to Prodger's earlier *Time Stands Still: Muybridge and The Instantaneous Photography* (see my *Leonardo Review* at http://www.leonardo.info/reviews/apr2003/Time_Ione.html). Similarities include the fact that both books offer insight into photographic innovation, the

creative imagination, and experimentation in the nineteenth-century. *Time Stands Still* captured the history of the quest to translate action into still photography, how it related to Muybridge's innovations with sequential stills to record action, and provided insight into the trajectory that led to the invention of cinema. *Darwin's Camera*, in contrast, focuses in on how Darwin used photographs to tie his theory of evolution with his theory of expression. With Darwin, Prodger is analyzing an aspiration to combine motion and still photography that dealt with a different set of problems. Each perspective offers a viable reference point in the development of photography as a scientific tool and a means to consider how both photographers and scientists were wrestling with their desire to portray that which is fleeting. The kernel of the argument in the Darwin study is that this thinker's examination of how to portray humans and non-human animals expression is an important part in the story of how photography came to be seen as "objective."

Many of the book's details add to its value. Comparative photographs from the Darwin archive are used to help us get inside Darwin's mind and allow us to see what he did to emphasize particular points Prodger wants reader to focus on when reading the text. Discussions throughout the book also help us look at Darwin's relationship to Charles Bell, the Scottish anatomist, surgeon, physiologist and artist. Darwin drew several of his anatomical examples from Bell's work on expression and took a class from Bell when he studied in Scotland. I was particularly taken with the discussions related to Darwin's rejection of Bell's idea that expressions were given by God, an idea quite popular among nineteenth century scientists. Prodger also is well versed on Oscar Rejlander, a photographer unknown to me before I read this book. While it is clear that Rejlander's tendency to embellish photographically is now seen as controversial, it is also clear that his work for Darwin included experimentation that Darwin valued precisely for this reason. Darwin did not see it as deceitful, but rather as an effort to push the technology beyond what it was capable of achieving then, at least in a basic sense. One notion related to the Darwin/Rejlander relationship stood out: Prodger's suggestion that Muybridge may have read a publication of Rejlander's outlining his experiments to capture motion. If Muybridge incorporated ideas published by Rejlander when developing his own motion study techniques, then he is directly linked to both Darwin and Muybridge. Another notation that showed Prodger's attention to detail was a reference to Rejlander's self-portrait *Surprised Man*, where the author points out that the photographer's stained fingers show the effects of the silver nitrate used in photographic processing.

Reflecting on the book when I finished it, I debated whether more information

about the broader history of photography was necessary for some readers. Will those who are unacquainted with photographic history conceptualize how important Prodger's insights are? When we look at the photograph today, it is easy to overlook the trajectory that has led us here. One iconic image of early photography that came to mind was Louis Daguerre's "Boulevard du Temple," taken in late 1838 or early 1839. It is generally characterized as the first photograph ever taken of a person, and it shows the early problems photographers faced in capturing movement. We are told that this lone figure on the deserted street is a deceiving image because what was normally a busy street was "lost" due to the long exposure times of early photography. In other words, in Daguerre's image the capture of a person was serendipitous because everything else was moving too fast to register during the ten-minute exposure time needed to imprint the photograph. The reason the man in the bottom left corner of the plate registered is that he was standing still, getting his boots polished during the entire time the photograph was taken. This is perhaps the first example of the "motion" problem.

In summary, *Darwin's Camera* describes how he worked to capture expressions that happen to quickly for the eye to see and offers a glimpse into how scientific imagery and technological innovation developed hand-in-hand. What sets this volume apart is the discussion of why Darwin's attitude toward crafting images to illustrate his scientific ideas may seem suspect to us today. If so, it is because we now assume that the scientific method is about conclusions fitting the data, not about creating data to prove our hypotheses. [Still, even today, we find that scientists highlight areas of the data that support their work. The false-colored images to which we have become accustomed are designed precisely to highlight what the scientists want us to see.] Without debating the pros and cons of this development, it is fascinating to think about the introduction of photography in the nineteenth century and how the efforts to capturing fleeting expressions required some degree of contrivance.

Prodger notes that Darwin's *Expressions* quickly went out of favor, possibly because the fashions of the models made the book look antiquated. Nonetheless, Darwin's contribution to scientific photography was revolutionary. Even if *Expressions* did not have a transformational impact comparable to a book like Vesalius' *De Humani Corporis Fabrica*, which provided a foundation for the modern disciplines of human and comparative anatomy and physiology, *Expressions* was still a remarkable achievement, as this pioneering study demonstrates. Both *Darwin's Camera* and the recent publication of an annotated edition of Darwin's *Expressions* by Paul Ekman, (which includes contributions by Prodger as well) attest to *Expressions*' current relevance. All in all, *Darwin's*

Camera is well written and nicely produced. Prodder ably credits Darwin's contributions to the history of scientific illustration and highlights this scientist's creative mind from an unusual perspective. He takes on a novel topic and ultimately says as much about creative thinking, experimental work, and an imaginative mind as he does about Darwin.

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Christiane PAUL

L'art numérique

Thames and Hudson. 2009

De décennies en décennies, le numérique devient de plus en plus présent dans la création artistique. Qu'il s'agisse d'un outil (photographie numérique, vidéo), ou d'un concept à part entière (hacktivisme), il trouve sa place dans la création de chaque artiste. Christiane Paul signe un livre très complet sur ce phénomène, ses origines et ses différentes formes.

Art Numérique s'adresse à celles qui désirent découvrir les différents changements de l'Art et de l'Art Contemporain, de manière complète et rapide. L'auteur récence de nombreux artistes et étend l'évolution du numérique de 1940 à nos jours : tout y passe, de la cybernétique à Nam June Paik en passant par Internet et, bien sur, elle n'oublie pas les jeux vidéos.

Le tout se déroule rapidement, dans un langage tout à fait compréhensible. Lectrice, n'ait crainte, ce n'est pas avec cette collection de livres que tu risqueras d'être confrontée à un quelconque langage pompeux. Les illustrations (dont la plupart sont en couleurs) sont nombreuses et permettent aux novices de découvrir de quelle œuvre parle l'auteur à l'instant même sans pour autant devoir mettre son livre de côté le temps de consulter Google.

On notera aussi des références numérique, d'expositions sur les nouveaux médias (qui couvre ces 40 dernières années) ou encore des musées et centre d'art dédiés à ce type d'Art.

On retrouvera également une page entière dédiée aux sites internet de

différents artistes cités au cours des pages, et, pour les moins geeks d'entre nous, un petit glossaire est également au programme.

En conclusion, l'Art Numérique fait partie de ces livres « carnets de bords » qui, grâce à des textes fouillés, de nombreuses illustrations et explications, permettent, en une lecture d'avoir un aperçu très construit sur un mouvement artistique.

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Jean Marc LEVY-LEBLOND

La Science n'est pas l'Art

Hermann. Paris. 2010

www.cognition.ens.fr/traces/images/downloads/dp_science_pas%20art.pdf

« La thématique Art-Science est devenue un poncif de la promotion culturelle contemporaine »

Il y a effectivement une pluralité d'initiatives intitulées Art et Science, là où il y a dix ans la revue Leonardo occupait seule le terrain.

« Entre le Louvre et l'Académie des Sciences, le pont des Arts est une simple

passerelle sur la Seine, fragile, réservée à la libre flânerie de promeneurs, et interdite à la circulation des engins mécaniques. C'est ainsi, avec prudence et légèreté, que je voudrais m'aventurer sur une passerelle – et d'abord la construire – qui traverse la scène où se joue la rencontre des arts et des sciences.

La thématique « Art-Science » est devenue un poncif de la promotion culturelle contemporaine. Elle sous-tend de multiples expositions, tant collectives, censées faire lien entre recherche scientifique et production artistique, que personnelles, d'artistes inspirés par certains développements de la science actuelle, sans compter nombre d'initiatives de communication institutionnelle dues, le plus souvent, à divers organismes de recherche, et une conséquente production éditoriale. Pourtant, malgré d'innombrables colloques, débats et rencontres, les fondements de tels rapprochements sont rarement questionnés.

L'idée la plus courante aujourd'hui, parfois explicite, mais le plus souvent implicite, sur la nature des rapports entre les arts d'un côté, les sciences et les techniques de l'autre, est de considérer le problème à l'ordre du jour comme celui d'une réconciliation : il s'agirait de favoriser la convergence de la création artistique et de la recherche technoscientifique, afin d'atténuer, ou d'abolir une coupure douloureuse.

Mais l'histoire de l'humanité, dans sa dimension culturelle en particulier, n'est-elle précisément pas celle de la séparation de ses divers champs d'activité, de leur autonomisation ? L'idée d'une réunification oecuménique, des grandes retrouvailles de l'Art et de la Science, me paraît relever d'une nostalgie naïve plus que d'un projet informé, fut-il utopique. Et puis, je dois l'avouer, cette séparation ne m'est nullement pénible. Peut-être est-ce une affaire de tempérament personnel, mais je me trouve fort bien de la différence essentielle entre l'Art et la Science – et de leurs diversités propres (*les arts et les sciences*) au surplus. Si, scientifique professionnel, mon intérêt pour l'art aboutissait à m'y faire retrouver des attitudes et des oeuvres semblables à celles que je connais (trop) bien, cet intérêt s'émousserait vite... L'art, et l'art contemporain en particulier, m'attire en raison directe de ses différences avec la science, et non pas de leurs éventuelles similarités. Je n'ai aucunement la nostalgie d'une Unité perdue de la création – pas plus naturelle (c'est la diversité du monde des pierres, des fleurs, des oiseaux qui en fait la beauté) qu'humaine.

Ainsi, cette pluralité des oeuvres, cette divergence des pratiques, je les tiens pour une richesse à louer et à préserver. Les rapports entre arts et sciences sont pour moi de l'ordre de la rencontre, de la confrontation, peut-être même du conflit – non de la (con)fusion ou d'une « nouvelle alliance ».

Et quand des poètes me disent reconnaître dans la physique théorique une démarche proche de la leur, ou que j'entends des mathématiciens affirmer à des musiciens que leurs recherches sont similaires, j'y vois des illusions souvent simplistes, parfois perverses et d'ailleurs banales. Je ne crois guère à la possibilité d'une analyse globale des rapports de l'Art et de la Science.

C'est pourtant ce qui est tenté dans l'article Art et Science du Lexique de Philosophie Naturelle

<http://www.peiresc.org/DINER/Lexique.pdf>

et ce qui sous tend la philosophie de ce Kiosque.

En particulier, je reste fort sceptique devant les assez fréquentes tentatives pour rapprocher l'art et la science au motif que la vérité ne serait pas réservée à la seconde ni la beauté au premier. Combien d'élucubrations n'avons-nous pas lues, jusque sous la plume d'éminents savants, célébrant la splendeur de telle équation ou la grâce de telle expérience, et érigeant l'esthétique au rang de principe méthodologique : la beauté, selon certains, serait un gage de validité... Ce scepticisme devant la portée d'une jonction trop facile et trop rapide vaut aussi sur le plan de l'inspiration conceptuelle que la science pourrait apporter à l'art. Un artiste peut bien nourrir son imaginaire de telle ou telle théorie scientifique actuelle, son oeuvre ne l'éclaire pas nécessairement pour autant. Que le big-bang ou la non-séparabilité quantique alimentent l'imaginaire d'un peintre ou d'un musicien, je m'en réjouis, et leur reconnais le droit le plus absolu à puiser dans la science ce qui les y intéresse, et même d'en détourner à leur gré les idées ou les images. Mais qu'on ne demande pas au scientifique d'en assumer le résultat, et de garantir sa valeur ou simplement son intérêt esthétique par référence à l'autorité de la science. **Si la science veut se faire culture, ce n'est pas en récupérant ou en arraisonnant la création artistique qu'elle y parviendra ; et si les arts veulent être en prise avec un monde dominé par la technoscience, ce ne sera pas en la plagiant ou en s'y inféodant. Le risque est permanent aujourd'hui de voir la science et l'art tomber dans la servilité mutuelle et l'histrionisme général.**

La science n'a pas besoin de l'art pour devenir culture mais c'est en se confrontant avec l'art qu'elle identifie leur culture commune. La culture non linéaire ou la culture de la complexité, tout comme la culture de l'information se déploient simultanément dans les deux domaines La culture c'est l'idée d'un « ZEITGEIST » qui inspire tous les domaines de la création.

Alors, plus simplement, ce sont les rapports d'un scientifique avec quelques aspects des arts plastiques contemporains que je voudrais tenter d'esquisser dans cet ouvrage.

Encore me faut-il préciser que mes intérêts pour l'art sont largement

indépendants de mes compétences scientifiques (et réciproquement), et que l'espace qui les sépare est justement celui où trouve à se déployer mon imaginaire et que tentent d'explorer les essais d'analyses qu'il nourrit.

Il faut prendre cela au premier degré comme le témoignage d'un scientifique sur l'art pictural.

Je dois enfin dire mon plaisir que ce livre puisse paraître aux éditions Hermann, tout indiquées pour l'accueillir, puisque **éditeurs des sciences et des arts.** »

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Alva Noë

**Out Of Our Heads: Why You Are Not Your Brain, and
Other Lessons from the Biology of Consciousness**

Hill and Wang, New York, NY, 2010

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Whilst the study of human consciousness has been a feature of the arts and humanities for centuries, the hard(er) sciences have been notably slow in treating this area of research with the seriousness it deserves. This has altered somewhat over the past few decades with advances in various neuroscientific technologies and, subsequently, methods, with a growing opinion in

neuroscience that scientists are able to explore consciousness and human experience through observing how the brain functions. In 'Out of Our Heads'

Alva Noë asks whether the assumptions that form the starting point of the majority scientific studies of consciousness – that it is 'something that happens somewhere and sometime in the human brain' (p. 4) – inherently constrains this area of research.

Noë defines consciousness from a biological perspective, arguing it provides a 'rigorous empirical alternative to mechanistic detachment on the one hand and mere personal intimacy on the other' (pp. 25-26). Typically, he argues, science has attempted to look at how others think through observing external behavior or measuring internal neural states, generating a scientific paradigm of the mind that must take a detached perspective. By starting from a non-mechanized biological perspective, however, Noë uses the example of how a simple bacterium may be considered as having a mind as a result of it having a 'life'.

The bacteria, although primitive, is engaged with and geared into its world around it in an attempt to fulfill its appetite for certain types of sugars. It may be difficult for some to relate human consciousness to the example of bacteria, but Noë's point is that consciousness can be understood not purely through some kind of internal state or its representation in external behavior of an organism, but rather through the ongoing and dynamic interaction between a particular organism and its environment. In stating this he does not deny the importance of the brain as a part of this system, but rather than being considered as the centre of human consciousness its role is more in line with 'enabling an exchange between the person or animal and the world' (p. 67).

The book comprises of eight short chapters that each takes a topic relating the move from brain-centric to world involving systems of consciousness, with an epilogue and a short section of notes near the end. The fourth section of the book appears to be of particular note, as it is here that Noë discusses evidence of how human activity both shapes and is shaped by the dynamic exchanges between a unified mind, body and world. The conclusion stemming from this chapter is that 'in an important sense, we are not separate from the world, we are of it, part of it'. (p. 95) This duly leads into a chapter on 'habits', which Noë determines as part of the worldly nature of consciousness in that along with skills they can be 'triggered by environmental conditions and they vanish in the absence of the appropriate environmental setting' (p. 97).

Taking Noë's argument, the intellectualization of conscious experience – that humans are thinking things that rationally digest information – must be replaced with understanding that we experience and perceive the world through the

sensory and motor skills the human body provides - skills that have evolved in reciprocity with the world they interact with. It is the habitual nature of human kind that have formed these skills over millennia, and Noë provides evidence that human beings are today still creatures of habits in an extended world of thought that goes beyond the skull. He touches on notions of novices and experts, comparing the techniques used by a player learning the game to that of a player who had mastered the sport through habitual practice. The novice requires a high level of focus upon the mechanics of hitting a baseball; the attention of the player is on their body, the ball and hitting thereof. The opposite is presented by the expert player, whom if concentrating on the mechanics of the task shows deterioration in performance. Rather, 'the expert turns his attention elsewhere-for example, to tactics, or to figuring out what sort of pitch is likely to be thrown next.' (p. 100) A similar argument is presented to people learning second languages. Noë highlights how the forming of habits and, thus, expert skills, furnishes beings with a heightened ability to partake in the wider context of an activity in an automatic manner. When we deliberate, plan and mediate the flow of a given situation is disengaged. If the environmental situation changes, again the flow of the activity is broken.

In 'Out of Our Heads', Noë has moved towards broadening the audience of his particular perspective on the philosophy of perception, and at many times the book reads as a journalistic piece rather than scholarship. Noë's argument is rather profound, yet in moving towards a more simplistic prose, an informed reader of 'Out of Our Heads' may react with a 'so what?'. Although I am sympathetic to Noë's argument, there are moments where I wonder what he is trying to bring to the table that differs in the slightest from what Maurice Merleau-Ponty, Francisco Varela, James Gibson, Jakob von Uexküll and a whole host of other thinkers have said before. To claim this, however, does injustice to the manner in which Noë synthesizes, examines and reanalyses a huge amount of scientific experimentation literature. Importantly, in making this book more open Noë still continuously relates his claims back to the empirical studies they are inferred from, never moving too far from the evidential base.

'Out of Our Heads' differs hugely in writing style comparison to Noë's previous work, such as *Action in Perception* [1], which can be hard work for anyone not entirely familiar with cognitive science, phenomenology and visual perception.

For this reviewer, there is no doubt that Noë has provided an account for consciousness that adds to the growing discussion of understanding human beings as embodied and situated organisms. Only touched on very briefly in this book, Noë's model of consciousness is greatly influenced by the work of Francisco Varela and Evan Thompson, and as such will provide easy and

valuable reading to anyone interested in the study of consciousness, and must be read by anyone working with the aforementioned authors work. Artists and creative practitioners interested in Noë's research on visual perception and consciousness may also find his investigations into the relationship between art and science and the role certain artworks have in the examination of perceptual consciousness as particularly useful further reading [2].

References:

[1] A. Noë, *Action in Perception* (Cambridge, The MIT Press, 2004)

Action in Perception

[Alva Noë](#)

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"Perception is not something that happens to us, or in us," writes Alva Noë. "It is something we do." In *Action in Perception*, Noë argues that perception and perceptual consciousness depend on capacities for action and thought—that perception is a kind of thoughtful activity. Touch, not vision, should be our model for perception. Perception is not a process in the brain, but a kind of skillful activity of the body as a whole. We enact our perceptual experience.

To perceive, according to this enactive approach to perception, is not merely to have sensations; it is to have sensations that we understand. In *Action in Perception*, Noë investigates the forms this understanding can take. He begins by arguing, on both phenomenological and empirical grounds, that the content of perception is not like the content of a picture; the world is not given to consciousness all at once but is gained gradually by active inquiry and exploration. Noë then argues that perceptual experience acquires content thanks to our possession and exercise of practical bodily knowledge, and examines, among other topics, the problems posed by spatial content and the experience of color. He considers the perspectival aspect of the representational content of experience and assesses the place of thought and understanding in experience.

Finally, he explores the implications of the enactive approach for our understanding of the neuroscience of perception.

[2] A. Noë, *Art as Enaction* (<http://www.interdisciplines.org/artcog/papers/8>)

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Zoi Kapoula et Louis José Lestocart (dir)

Esthétique et complexité

Création, expérimentations et neurosciences

CNRS Editions 2011

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