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Drawing and Scientific Environments, from Ruskin to Rover

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- 1 Within life sciences and the crisis they are experiencing, at least three very different approaches coexist: solving a problem – and discovering new ecological production processes; raising a problem – and trying to make it more perceptible; shifting attention – from a history of innovation to a history of uses, particularly through the visual history of representations.
- 2 Stéphane Van Damme, a professor of history of science at the European University Institute in Florence, has recently offered a synthesis of the exchanges that have been taking place over the last thirty years or so within the history and visual culture of science. In *Seconde Nature : rematérialiser les sciences de Bacon à Tocqueville*, he focuses on the analysis of science in the wider framework of a history of nature and its “anthropolisation”, with a view to adopting an ecological approach to science. By retracing the history of sciences torn between two opposite views – a humanist and culturalist one that tends towards dissolution in the history of knowledge, and a naturalist one embodied by the history of environmental sciences – he seeks to produce a history of rationality in the Anthropocene. By emphasising historiographical rather than historical opposition which demands that historians of science shift their attention towards the latter sciences and forms of knowledge, his study offers an overview of the ways to pluralise ontologies and “renaturalised” science, following Philippe Descola’s theoretical development focusing on thresholds. Although, as Maurice Merleau-Ponty once said, “science manipulates things and gives up on inhabiting them”, Stéphane Van Damme resituates the history of the environment in relation to ways of living and through the deconstruction of naturalism. The sustained dialogue between the history of science and human and social sciences implies to move forward the understanding of the crisis for what the author calls the “ontological disorders” of the modern era. This goes hand in hand with an anthropological turn that is at once materialistic, pluralist, visual and global, placing the historian of science in a

renewed methodological context. To understand science is, above all, a question of knowing how to narrate it. This is the case with the author's use of the *motif* of scientific revolution, which he emphasises and uses as a narrative thread and pattern, a "model for action and anticipation" in the recounting of scientific discoveries. The trend for artificial experimentation has strengthened the role of instruments. Natural philosophers have endeavoured to enhance the scientific status of instrumentation as much as that of experimentation. Following Van Damme's demonstration, transforming part of the examination of the nature of philosophical practice into an experimental practice would have led to the creation of experimental devices aimed at measuring and quantifying physical phenomena. Through the collective practices he describes, the milieu of naturalists is outlined as a rich social configuration in which social connections are made and collections assembled, at the intersection between aesthetics and scientism, where borderline objects (such as shells) are fashioned. This explains why natural history has always been considered as a "visual science" which gives primacy to the sense of sight, imbuing it with the virtue of transparency, as stressed by the author: "The scientific image has often been described as having the power of effectively representing reality and therefore of being an agent of objectification that would make it possible to move from a first [representation of] nature that is free, abundant and composite, to a second nature comprised of scientific objects. But this locus conceals a relationship between science, art and nature that may in fact be more complex and plural."¹

- 3 Consequently, following the historical and conceptual genealogy he develops, the definition of objectivation would shift from the simple abstract and geometric reproduction of nature to the materialisation of what he terms "second nature": "embodied in places, landscapes or postures"². Objectivation would therefore be materialised not only by the pictures but also by the objects themselves.
- 4 In this regard, Sarah Casey and Gerry Davies, the authors of *Drawing Investigations*, examine the emergence of a way of thinking by exploring commonalities in the application of analytical drawing to the natural world, urban environment, social forces and life experiences. Both authors identify an issue that is common to many researchers in the arts as well as in the fields of humanities and social sciences, namely that drawing embodies the understanding of its subject – as object and fact – as well as a knowledge of its creator, his or her methods and ways of thinking. Their book hinges on the relationship between seeing and knowing through drawing, starting with the theories of John Ruskin in the mid-nineteenth century and the *ethos* defined by Ernst Gombrich. This is a particularly crucial subject and it connects many representation problems with scientific practices. Janet Vertesi, for instance, carried out an ethnographic study as part of a NASA team during two years. She focused on the exploration of Mars using Rover Opportunity. Her study was published in 2015: *Seeing Like a Rover: How Robots, Teams and Images Craft Knowledge of Mars* (University of Chicago Press). Janet Vertesi develops the concept of "drawing as", based on a combination of Ludwig Wittgenstein's concepts of *seeing-as* with Russell Hanson's concept of *theory-laden observation*. The idea is that "we structure what we see". Our perception is always constituted, informed by meaning, categorised (according to Kant, it is not concept-less), as demonstrated by Joseph Jastrow's famous rabbit-duck drawing. In her observations, Janet Vertesi foregrounds the work of a research technician responsible for generating images by feeding them into software, while evaluating the aspects that need to be emphasised, using filters to reveal them, colouring or applying texture to

them. These successive operations determine the stages of work as much as the degrees of interpretation. From the moment the image is planned, negotiated, annotated, discussed, transformed and “spoken for”, it can be said that thousands of words shape it, and that every iteration captures a moment of consensus in the evolution and history of the mission. The concept of “drawing as” begs the question of how a scientific community can succeed in seeing a picture in the same way.

- 5 Technical skill and the sophistication of representation, which seek an “exact” view of nature, are not sufficient in order to see and observe. They have a history, if we follow the argument developed by Lorraine Daston and Peter Galison, which Stéphane Van Damme also uses in his book. The issue of depiction is based on a renewed epistemological reflection surrounding the technical possibilities of the representation of nature and its foundation in the administration of proof. This position is to be found throughout the history of natural history drawings, from Carl Linné’s taxonomies to James Cook’s maritime explorations and the anatomical study of Purkinje cells in the cerebellar cortex by Santiago Ramón y Cajal.
- 6 Another example of the use of drawing for scientific purposes is that of anthropological investigation. Michael Taussig has examined drawing from an anthropological point of view, not in order to consider what we see or what we think we see when we look at pictures, but rather to discover how much “magic” comes into play when we create an image. Why is it sometimes more interesting to draw rather than to take a photograph? What is the difference between these two modes of image production? The act of creating graphic images and their finish play a decisive role in their reception and the information they convey, because in their own way they shape a rhetoric of reality. Observing, describing, recording are operations that are specific to a new validation system for the statements of science.
- 7 Stéphane Van Damme encourages us to question the concept of the scientific image as ahistorical, by focusing on processes that scientise images and make artefacts out of nature, provided the issue is not limited to questions of importations or transfers from one field to another. This incentive relies on the pluralisation of visual regimes, and demonstrates that the relationship between science and art is not stable. They transform and give rise to the gradual shift from an idealistic approach to a material and sensitive approach to nature. While ecology – particularly its political dimensions – has only received limited attention in academic visual studies; in recent years the imminent threat of multiple environmental crises that exacerbate socio-political and economic crises has made the field increasingly visible. In *Decolonizing Nature*, T.J. Demos³ specifically explores the intersection between contemporary art, environmental activism and political ecology. In order to develop a decolonising approach to nature, his starting point is the question posed by Naomi Klein, “Can’t we imagine any other way of responding to the crisis than by worsening inequalities, brutal capitalism in the face of disaster and mutilated techno-corrections?” What he calls the “decolonisation of nature” implies no longer placing humanity at the centre of the universe or considering nature as a source of endless generosity. The fields that have examined the terms of this movement include visual culture, realism, design fiction and new materialism. T.J. Demos terms them “ecosophical activism”, including object-oriented ontology, political iconology and post-humanism. These fields all suggest innovative methodologies of post-anthropocentric analysis, developed by Bruno Latour, Anselm Franke, Diana Coole, Samantha Frost and Jane Bennett.

- 8 According to T.J. Demos, decolonising research methodologies could be a step forward, partly through the acknowledgement of the conceptual lineages of theories developed in Western – or even Euro-centric – academia, and by connecting them to the histories of struggles and colonised viewpoints, including indigenous cosmologies, animism, legal codes and, where relevant, social movements. From a technical perspective, not everything can be solved through the ecological crisis. On the other hand, it is possible to radically change our relationship to the world, in particular by renewing imaginary, sensory and biological experiences. Thus, instead of a great division between naturalism and animism, the crisis of the living world should be seen as a crisis of sensitivity. As Stéphane Van Damme suggests, “rather than considering the knowing subject as being separate from the outside world of graspable things”, these new anthropologies place it within this world, by referring to a “poetics of inhabiting”⁴, or even to a “biosemiotics”, where humans are perceived as continuous with other beings, radically immersed “in a universe that surpasses and conditions them” – as inhabitants of a second nature.

NOTES

1. Van Damme, Stéphane. *Seconde Nature : rematérialiser les sciences de Bacon à Tocqueville*, Dijon: Les presses du réel, 2020, (Œuvres en sociétés), p. 131
  2. Van Damme, Stéphane. *Op. cit.*, p. 155
  3. Demos, T. J. *Decolonizing Nature: Contemporary Art and the Politics of Ecology*, Berlin: Sternberg Press, 2016. See the article *Critique d'art* published on the subject (n°48, Spring/Summer 2017), <https://journals.openedition.org/critiquedart/25636>
  4. Tarleton, Jon. “Interview: Naomi Klein breaks a Taboo”, *Indypendent*, September 12, 2014, <http://indypendent.org/2014/09/12/interview-naomi-klein-breaks-taboo> (consultée le 22/10/2020)
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