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Images of «True Nature» – An Introduction

It has been claimed that only an aerial view is able to give us a «true picture of the splendour and richness of shapes» in nature.[1] This confidence in the aerial image is driven by the hope that it might provide a cognitive «insight into the landscape», because it facilitates an «overview and monitoring» of climate, soil genesis, and so-called lake types. The statement itself comes from Erich Wasmund, who in the 1930s attempted to render aerial images useful for science, as did many of his colleagues from the geosciences and, later on, the environmental sciences. At the time, the question of whether and in what sense the photographic aerial image – including photographic images of landscapes – could be claimed to be »true» was still very much an open one. What was their epistemic and ontological status? Indeed, what status *should* they have, and why?

Mimetic images of nature presented in various media have been part of our cultural memory and everyday practices for a long time. Ever since the emergence of landscape painting in the 17th century, if not before, images of nature have been strongly codified. From then on they have proliferated both in popular culture and scientific disciplines. Looking at current debates around biodiversity or climate change, it becomes clear that scientific knowledge is communicated in part with the aid of images, which rely, to some extent, on the tradition of landscape painting. A range of scientific disciplines, from nanotechnology through to limnology (the science of freshwater ecology), appropriate images of nature, albeit in different ways. While limnology, for example, frequently transforms three-dimensional images into two-dimensional sets of signs, nanotechnology re-constructs traditional images of nature out of a set of digital data.

The idea for this edition emerged in parallel with the construction of a database of images by the editors, who wanted to reflect critically on the visual construction of nature. One essential component of the project in its early stages was to develop a viable tool – a web-based information system – that would make it possible to collect, organize and display the image data. The aim of the now available prototype is to facilitate the creation of various kinds of networks: a) at the level of information technology, b) at the level of users, c) and at the level of content. In terms of information technology, the main aim is to create and stabilize a network link between visual data and metadata, between visual data and literature data, and also between databases. The prototype has already provided a first impression of what form the

1 This quote is from the depiction of an aerial photograph in Wasmund (1930c, p. 536, see Schwarz, this issue). However, the question of visual truth is raised throughout this volume.

many diverse networks of institutions and individuals and of disciplines and types of scientific activity might take in which ecological research and environmental research in general has been and is being conducted.

During this first stage of the project, our collecting activities were focused on a few selective examples of different visual media that have been used in ecological research over the years. Although the emphasis is on photography (landscape and aerial images in particular), there are also some microphotographs, X-ray photographs and chronophotographs. We have gathered visualizations of complete organisms or parts of organisms, populations, biocoenoses and biotopes. The list of keywords covers a variety of media such as drawing, etching or oil painting, as well as different representational techniques, including diagram, scheme, map, plan, table, poster, postcard, cartoon, textbook, scientific publication and popular literature.

The material is drawn largely from books and journals, although we look forward to being able to include hitherto unpublished resources as well. One problem associated with the material, be it from published documents or unpublished archival sources, is that the origin of the images is often not documented correctly (requiring further extensive investigation) or in some cases has been lost completely. This difficulty applies to the medium of photography in general, so that its usefulness as a source in historical research was somewhat underestimated, leading to its underrepresentation in such research until about the 1980s.[2]

Users of the web-based database *Visual Cultures of Ecological Research* (http://bildkulturen.online.uni-marburg.de) are provided with a decentralized structure for researching and recombining data and information via an interactive platform, this being a further aspect of the networking component. Issues concerning the representation of nature in its specific forms or the interplay between society and science may once again be of relevance here, too. Creating a link between content, visual data and literature data ultimately facilitates a topographical representation of the institutions and individuals being researched, thus generating new insights into the history of disciplines, individuals and institutions of the actors concerned with nature «out there». Indeed it is the visualization of the visual data according to historical and geographical criteria that makes it possible to generate new research questions. In this respect the web-based information system can be used as a heuristic tool for simultaneously extending and enriching perspectives from the philosophy and history of science and media studies.

«Ecology» is the name given to a sub-discipline of biology. However, ecological research is not conducted in this context alone – it is also a component of engineering-based disciplines, such as agriculture and forestry, and of subjects based more in the humanities and social sciences, such as cultural or human ecology. Inde-

2 This observation was presented and discussed in detail at the conference «Histoire contemporaine et photographie: paradigmes – Problématiques – perspectives«, a one-day event held at the German Historical Institute in Paris, November 9, 2007.

ed «ecological» has come to be a comprehensive catchword – especially a political one – that structures discourses and provides orientation for action. It follows that «ecological» can be conceived in both normative and epistemological terms.

In this project we are particularly interested in images of nature in its specific forms, that is, the modes of representation of nature «out there» in open space, outside the laboratory. These images are influenced substantially by visualizations of nature that are generated in the context of ecological research. All that is seen, described, analyzed and politically negotiated as «ecological» in society is mediated through the production and transformation of images – through images which wander nomadically between various media and discourses as they move from science into society. Thus in this sense, nature in its specific forms – often visible to the naked eye – is just as much a constructed phenomenon as the abstract nature of the laboratory sciences.

A wide variety of visual images of nature are constantly being generated and defended, depending on the historical, cultural and methodological context in which they occur. These images represent different metaphysical ideas and epistemic models, and they differ in terms of the techniques, strategies and settings involved in their production. Ecological research, as we see it, can be read as a mapping program that presents different ideas of nature as they occur in different scientific, national, philosophical and geographical cultures. Whether a particular piece of nature is considered worthy of protection, is regarded as a commodifiable resource, as unreliable and dangerous, or as accessible to the contemplative mind depends crucially on its cultural environment – and thus, in our knowledge society, on science's visual and conceptual representations.

Against this theoretical background, reflections on images of «true nature» branched out in several directions, as the essays in this edition testify. Certain basic assumptions such as the constructed nature of the image, the hybridity of aesthetic and scientific discourses, and epistemological questions concerning the images' status are woven throughout the respective individual approaches. Valerie Hanson analyzes visual structures within scientific discourse, investigating images produced at a very small scale. The realm of the microscopic image is extremely interesting since, in the absence of an object that is neither visible to the naked eye nor tangible, it illustrates clearly the norms of visual construction. As the database has demonstrated, images rely not so much on their mimetic intention as on the inherent rules governing their composition. These also come into effect when space is concerned. In «Rising Above the Horizon», Astrid Schwarz shows what happens when a line migrates up or down in an image depicting nature. The presence and positioning of the line of the horizon determines whether we see a landscape, a map or something in-between – an aerial photograph, for instance. After introducing a number of general features of early aerial images as technoscientific objects in their cultural and epistemic context, she turns to a specific case in the field of aquatic ecology, reflecting on why the establishment of aerial photography as a scientific tool failed at

the time. It turns out that this was due neither to the dual-use aspect of aerial photography nor to any opposition in principle by the scientific community, but rather to its association with certain conceptions of ecology that were out of favor. Addressing a different scale altogether, Alfred Nordmann is interested in landscape as a picturable space in which signs are arranged in certain ways. He contrasts this with immersive spaces for doing and building, in which the spectator is transformed into an actor. In his account, the cave constitutes a site where these two modalities come together and then part company. The cave's immersive interior can be represented as a landscape, and representations lose their representational character when they serve the construction of so-called *cave environments*. The scientific art of representation requires a carefully maintained distance, which collapses as technoscientific researchers enter the cavernous interior of human bodies, the molecular nanocosm, and other spaces of technical possibility.

Angela Krewani considers the aerial images contained in the database and maps out their history. The bird's eye view already emerged for the most part in Renaissance culture, aerial images related to economic and military interests can be identified as forming a distinct tradition. The conflation of scientific and political interests within the specific use of such images evolves even within the limnological research of the 1920s and 1930s, as the database clearly demonstrates. The database itself provides excellent access to images as well as offering ways of contextualizing knowledge – but still it had to be brought into being in the first place. Stefan Aumann, who works at the computer center at Philipps University Marburg, took on the task of organizing the data according the researchers' needs. His essay gives an account of the overall database concept and its organizational structure, explaining how the images were integrated into this structure. As mentioned above, the database provides an insight into the visual construction of nature «out there», drawing especially on images created through photography and painting. These images of nature can be understood additionally as internalized images, shaping our understanding of nature. In his piece, Alfred Nordmann briefly mentions the capacities of interior landscapes and the history of their realization. Karen Ritzenhoff's essay tackles this topic directly, discussing what she calls «internalized concepts of nature». Coining the term «landscapes of the mind», she analyzes images found in art and film, showing how they contribute towards the creation of mental images of landscape and nature. She has collaborated with the New Britain Museum of Art, Connecticut and she has aimed at re-kindling images of nature and re-establishing concepts of nature and art through individual performance. By discussing and re-enacting a painting of the events of September 11, 2001, Karen Ritzenhoff comes to an understanding of the connection between artistic expression and individual mental landscapes. Her project integrates concepts of art, personal concepts of nature, and the cultural response to public notions of nature and civilization.

The idea of re-introducing nature and gardening into urban landscapes has been put into practice in some American cities over the last few years. New York

City especially has seen a proliferation of activities involving public gardening. As the *Frankfurter Allgemeine Zeitung* reports, vast industrial areas have been redesigned as public parks.[3] The writer Chez Liley from Connecticut has taken up this issue on a slightly smaller scale. Working alongside a group of children, she has created an urban children's community playground in New Britain, Connecticut. Her essay conveys her struggles to achieve a natural playground.

Having begun with a discussion of microscale images, the collection of essays ends with an artistic endeavor aimed at recreating nature in an urban location. The common theoretical ground for these discourses on nature can be seen as being an understanding that visual images are constructed, and that their existence is rooted in specific institutions and traditions and in the general cultural influences that help shape them. Images of «true nature» are viewed throughout as epistemological objects.

3 *Frankfurter Allgemeine Zeitung*, 14.11.2009. Weekend supplement.