When Thorbjørn Lausten held the exhibition *Datablik* (‘Dataview’) at Overgaden more than a decade ago, the visualisation of contemporary scientific data in an art context was still a relatively rare phenomenon in Denmark as well as internationally. However, it is a field that has interested Lausten since the 1970s, and he has spent over 40 years investigating the complex potential of the intersections between art, science and technology. This year Overgaden has chosen to return to Lausten's exhibition as part of the REVISIT series, which once a year delves into the history of the institution to throw light on some of the many major art projects it has hosted over the years.

Traditionally, scientific data visualisation is the representation of quantitative data as points, lines, curves, simple geometric forms and other graphic elements. Data is at the core of all scientific research, so the understanding and dissemination of science is fundamentally dependent on data representation and the visual presentation of data. Many of Lausten’s works are based on accurate scientific data, and his visualisations are always in accordance with scientific data points. But Lausten’s point is not to create scientific illustrations. Rather, he investigates the extent to which artistic visual representations can contribute to the classification of data as knowledge. Changing the form of representation is of crucial significance for interpretation and therefore content. This is also the case in traditional information design. How the visual can play a role in relationship to form/content is pivotal to Lausten’s works.

The visualisation of data is well on its way to becoming as important for the 21st century as film and photography were for the 20th century. There is vast potential in data representa-
tion and the colossal amounts of information we generate on a daily basis – both as individuals and societies. We rarely think about it, but large quantities of data are a fundamental part of our everyday lives in the form of GPS data, credit card transactions, tweets, posts on Facebook, etc.

Scientific data is generated using DNA analyses, satellites, chemical screening, etc. Analysed correctly, this data can help us diagnose patients, predict climate catastrophes and natural disasters, develop new forms of treatment, and much more. The range of data is not alone in playing a role – the speed at which it accumulates plays a crucial role in its quantity, processing and analysis. With so much variation, analysing and understanding data is a major challenge. Visual representation and interpretation is a natural path to get there.

The current exhibition shows Lausten’s impressive scope in using different scientific data and a wide range of methods. The artist is consistent in constantly working with the representation of data, but at the same time he also demonstrates a versatility that involves a wide range of scientific data, close interdisciplinary collaborations with scientific experts, as well as a broad spectrum of visual techniques. The work *Datablik* (‘Dataview’), for example, made in collaboration with astrophysicists at the Technical University of Denmark, is based on data from the solar wind. Measurements of the speed, density, temperature and angle of the solar wind that shape the work were taken from the satellite SOHO (Solar and Heliospheric Observatory) and visualised in large video projections that have an impact by virtue of their size alone. Data is represented in an immediate and direct form – very unlike what we find in traditional scientific data visualisation.

In the late 1960s and early 1970s the neuro-psychologists and Nobel Prize winners David H. Hubel and Torsten N. Wiesel discovered that we are most stimulated by colour, size and movement. They also concluded that the response of neurons was dependent on visual stimuli. Lausten’s works are clear manifestations of the impact representational forms have on how we see and interpret data.

Building on *Datablik*, Lausten has made the new major work *POL* (‘Pole’) for the current exhibition, again visualising data in large light projections, here with real-time scientific data from the Arctic and Antarctica represented using colour codes.

Data visualisation has come a long way since the mid 20th century, when there was significant interest in scientific illustrations in international research circles. In molecular biology the experiments included watercolours and painting. One of the most famous examples is Irving Geis’ three-dimensional watercolours of the molecular structure of myoglobin, which was discovered by John Kendrew at Cambridge University’s Cavendish Laboratory in the early 1960s. As a science researcher, Kendrew had a rare passion for the aesthetics of illustrations, whilst insisting on the use of accurate data. As does Lausten. This is his heritage, and he uses it well. But he goes much further, and uses a far broader range of effects.

The American statistician Edward Tufte has written numerous books on data visualisation, which are considered essential reading for anyone working professionally with information design. But the problem is that the vast majority of the literature is based almost exclusively on historical examples, with very little focus on contemporary scientific data representation. As a result, our ability to analyse these is underdeveloped. Whilst several leading scientific journals have focused on data representation in recent years, this has largely been from a solely technical and scientific perspective. One of the major challenges in the communication of scientific data is that its representation is often explained and interpreted from a single perspective, be it art history, art and design theory, science, communication studies or computer and data design. Lausten’s works breaks this mould, creating possibilities and interpretations in a broader perspective.

We usually think of vast quantities of data as endless rows of numbers, but data today is often a mix of text, speech and moving images, usually in real-time, i.e. the data changes constantly. *POL* uses numerical values from measurements of the strength of the magnetic field
on a horizontal and vertical plane, as well as the total magnetic force. Each numerical value in these measurements is given a specific colour, which is visualised in five different projections. The 256 different colours the numerical values can have are partially random, and thus do not contain any direct data interpretation. When the light projections show a specific colour, this refers to a specific measurement. New data is sent to the installation every minute, updating it constantly.

In research-based data visualisation, where scientific interpretation is dependent on data representation, colours can be a powerful means to clarify points and parts of the data set. But unless chosen carefully, colours can also create confusion and generate uncertainty about the interpretation. In an artwork, colour contributes to the overall aesthetic impression and – in the case of Lausten – also means something in relation to the value of the data points. Each of the colours in POL represents a measured value, and the work therefore changes with fluctuations in the incoming measurements. To the right of the work data from the Arctic is represented, and to the left the equivalent from Antarctica. Within the representation of each pole exactly the same data is shown in two, tripartite areas that are visually contrasted through the use of complementary colours.

Data design is an expanding field, and entire university departments have been established to research and practise data and information design. It can sometimes be difficult to distinguish certain aspects of information design from art – and vice versa. An increasing number of visualisations in the genre of information design can be seen as artworks, and some have even been exhibited at MOMA. The majority are not designed for this purpose, but still have the aesthetic qualities we often associate with art, and are therefore seen as such. Their intention is not necessarily, as in data visualisation in a scientific sense, to reveal patterns or structures in abstract and complex sets of data, but also to use data visualisation as a technique to produce something that is aesthetically interesting.

In their simplicity, Lausten's data visualisations are reminiscent of the geometrical abstractions of Piet Mondrian or Kasimir Malevich in the early 20th century. But Lausten’s works are packed with data, and thus go beyond the solely aesthetic by consciously relating to current, scientific data and the form the work creates. Data visualisation can amplify the dynamics and logic of the data points. Like information designers, Lausten uses algorithms to create complex static, active or interactive abstractions using data, often – as in POL – vast quantities of scientific data.

As well as being able to see POL in the exhibition at Overgaden, a modified version of the work projects the scientific data onto the front of the building facing the canal. Lausten hereby creates an impressive extra space for interaction with data in real-time, providing a basis for further interpretation – both artistic and scientific. What is fascinating about many of Lausten's works is the opportunity they provide for direct interaction with scientific data – as well as the opportunity to witness direct data gathering, as in POL.

The vast quantities of data we are surrounded by today provide infinite opportunities for information designers and artists interested in scientific data. There are endless challenges and interesting data to work on for artists today. We could ask where the boundary between art and data design lies. Lausten provides no answers, but he invites us to take a stand. That, in itself, is important.

Rikke Schmidt Kjærgaard, PhD, is Associate Professor at Aarhus Institute of Advanced Studies and the University of Aarhus’ Visualization Lab.

Translation: Jane Rowley
CV


EVENTS

Thursday 3 December 6-7pm
Lecture // Art as Eye, Hand and Thought – About Unity, Otherness and Triplets
Taking two 28,000 and 18,000 years old cave paintings in the cave Cueva de la Pileta near Ronda in Andalusia as the starting point Claus Carstensen will give a lecture on how consciousness, thought and writing take their origins from art. Something that artists have often been intuitively aware of and more or less openly carried to the market as expressed in the title of one of Asger Jorn’s paintings: In the beginning was the image. The event will be in Danish.

Thursday 7 January 6-7.30pm
Panel discussion // Data Visualisation – Credible Construction or Interpretations of Reality?
Based on Lausten’s use of scientific data and data visualisations Overgaden invites you to a debate. During the evening we will address what role the streams of digital images and data play in our understanding and perception of the world in a time when information technology increasingly dominates. What impact does the digital have on our understanding of concepts such as objectivity and representation? How is the technological development expressed in art, and which collaborations across science, art and technology stimulates and facilitates this development? The event will be in Danish.

THANK YOU

Thorbjørn Lausten would like to thank Mikal Bing, Ole J. Knudsen og Ib Lundgaard Rasmussen. Also a warm thank you to Tromsø Geophysical Observatory at UiT – The Arctic University of Norway for preparing magnetometer data and providing measuring data from Svalbard. Lastly, a thank you to the Arctic and Antarctic Research Institute in Russia for making measuring data from the Vostok Staton at Antarctic available.

UPCOMING EXHIBITIONS

Friday 22 January 2016 Overgaden presents the solo exhibitions You’re Gonna Die Up There by Søren Thilo Funder and A closet does not connect under the bed by Ester Fleckner. The exhibitions run through 13 March 2016.

This exhibition folder can be downloaded from: www.overgaden.org

The exhibition is supported by:

THE DANISH ARTS FOUNDATION

Aaage og Johanne Louis-Hansens Fond
Ernst B. Sunds Fond
Grosserer L. F. Foghts Fond

Overgaden is supported by the Danish Arts Foundation’s Committee for Visual Arts and the Obel Family Foundation.

Overgaden.
Institute of Contemporary Art
Overgaden neden Vandet 17
DK-1414 Copenhagen K

www.overgaden.org
+45 32 57 72 73