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Weimarck, Torsten

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LUND UNIVERSITY

PO Box 117
221 00 Lund
+46 46-222 00 00

Torsten Weimarck

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Is There Really Something Which Might Be Called a 'Self-Demonstrating Picture'

– Even Within Scientific Imagery?

Some Observations on a Double Illusion of Communication

Abstract: I will propose some ideas about such pictures claiming to be *self-demonstrating* or *self-illustrating*, mostly using some classical anatomy illustrations. Based on these you may say that the anatomy seems to create a remarkable, realistic pictorial code, which casts together in one single, self-demonstrating shape, an object of knowledge with the properties of the natural object itself. This is the paradox of the self-demonstrating picture's *double* illusion of communication: on the one hand it seems to be a picture of the natural appearance of the object, but on the other it is, in fact, simultaneously a depiction of a cognitive *concept*, a visual *name* of this object. It is a conditional and man-made classification, which is embodied into the body itself.

In this article I am going to discuss, partly from an art historical aspect, a group of some remarkable scientific pictures, which don't seem to have, need or use any code of representation: they just declare that they both *are*, and *mean*, what they simply *look like*. The pictures I'm thinking of now, are mostly from older times, and my knowledge of them concerns in most cases, classical anatomy. Nonetheless, they have a great number of present-day descendants in the image practice and utopian dreams of transparency and visuality in today's flow of strongly working images in different media. Surely, they must represent a paradisiacal state of things, where the limit be-

tween representation and the represented object is often blurred to the point of identity of these inconsistent terms.

These special qualities and aspects of the self-demonstrating picture seem often to have become invisible or identical with the represented item, not only when this item must be called 'the reality', that is, when it is the real or natural object, which is depicted, but even – and especially – when it is apparent that the image contains some distinct statements or explicit assertions about this object. These may appear to be included or built-in – even identical with both the picture itself and the real, natural object, to which it refers.

Slightly more than fifty years ago, in his seminal work, *Prints and Visual Communication*, William M. Ivins Jr analysed the more or less unintended, yet important roles of the different graphic techniques in the expressive as well as cognitive results of the scientific prints. There he convincingly showed how woodcuts and engravings in copper, in different ways inevitably changed, reduced and even deformed the meaning of the figurative elements and the special communicative qualities of the original drawing or painting. This occurred when it was transferred for reproduction to the printing medium, especially when the artist and the printmaker were two different professionals and highly specialized individuals. In particular, it affected the scientific images, where it is extremely important to retain unchanged the qualities of the detailed observations during the technical transferences of the reproduction process. It was first with the introduction of lithography (late 1700s) – which needed no intermediary professional agent, because the original could be made directly on the printing medium by the artist – as the printing technique seemed to be freed from the deformations caused by the copying process. In the wake of Ivins, this was in particular seen to take place in a still more effective way by means of the photographic technique, where the picture was shaped not by the artist's hand, but by the direct chemigraphical influence of the sunlight. In an early essay by Roland Barthes, 'Rhétorique de l'image' (1964), he, too, claimed that photography provided a message without code, permitting analogous, denotative and self-demonstrating depictions – a position he would later on abandon.

So, the self-demonstrating picture is an image which seems to easily be able to convey its own meaning, and which in a remarkable way may seem to be identical with this

sense, or even its name – in a similar way as a person whom we well know, may seem in some deep aspect to resemble his or her own name.

Fig. 1

Drawing in the students' comic paper *Gåsblandaren* (1974). KTH Royal Institute of Technology, Stockholm.

A more comical illustration of this phenomenon you may find in this cartoon representing the outline of a horse composed by the written names (in Swedish) of the different parts of the body of the horse. Is this a joke? Yes, but no doubt it may remind us of some deep experiences and seems to bear a serious essence.

Fig. 2

The stomach, drawing in *Codex Roncioni* 99, c. 1225, University Library of Pisa. (After Robert Herrlinger, *Geschichte der medizinischen Abbildung. I. Von der Antike bis um 1600*, München: Heinz Moos Verlag 1967, fig. 6, p. 14.)

In this drawing, depicting some of the intestines of a human being, from a north Italian anatomical manuscript from the beginning of the 13th century, the appearance and location of the organs are partly determined by the form and dimensions of the inscribed verbal terms which are signifying these organs. And, finally, in the middle of the stomach the Latin text tells us laconically that “here, the food is located”. – The significance of naming an object can hardly be overrated; it's a very forceful, form-giving and performative method. – We may remind ourselves of the etymology of the word *drawing* at the early art academies. Here they often also instructed artists to satisfy the classical scientists' need for representations, and in that context they said that *drawing* meant to give *visual concept* to something that is to make an object come into cognitive existence and be identifiable for a human beholder, or be visible in a human universe.

Fig. 3

Babylonian clay model of a sheep's liver, c.1900–1600 BC, British Museum, London.
<http://www.britishmuseum.org/explore/highlights/highlight_objects/me/c/clay_model_of_a_sheeps_liver.aspx>

That geographical maps need certain knowledge of cartographical codes and conventions to be read and understood is obvious. In a corresponding way a sacrificial priest in the ancient world must possess a certain skill in order to understand the will of the gods and predict the future, as may appear on the surface of the liver of a sacrificed sheep. On this ancient and famous clay model of such a liver from Babylon in Mesopotamia we can see the interpretation that the priest has scratched on it in cunei-

form: it is said to tell about the future of the war, when the rain will come, the destiny of the king's love and health, and other important things.

Fig. 4

The 99 names of Allah. Glazed tiles from the Rock Mosque, Jerusalem (seventh century).

So, in earlier times, they said that to the individual who really is able to *read*, Nature appears as an open, readable book, written by the hand of God, – in a way corresponding with these glazed tiles in the Rock Mosque in Jerusalem (seventh century) that reproduce the 99 names of Allah; he must not otherwise be depicted figuratively. And there are recurrent local legends that are spread far and wide about how the name of Allah is revealing itself, for instance on a raw, striped lamb chop, or, as now recently reported briefly in the newspapers, the name of Allah was distinctly recognized on the leg of a little, newborn baby somewhere in Russia... – the deep meaning of the word and its visual appearance is here one and the same.

This more or less magical thinking, where verbal and visual codes appear to be able to unimpeded share the communicative space within the same image without forcing the beholder to shift the modes of the perceptive reading, seems to almost reach an end with the growth of the classical natural sciences. These put an emphasis on *personal observation*, looking at something by means of the individual's *own* eyes and not with those of others. So the object of knowledge is no longer the words of the ancient authorities, but instead the appearance of the natural, real object and the more or less realistic depiction of it. It can thus look as if the scientist is approaching 'the reality' or 'the natural object'. So, for example, the history of anatomical knowledge is usually described as an evolution towards more and more scrupulous enlightenment, towards visual truth and factual transparency – as if the observed object of knowledge was one and the same all the time.

Fig. 5

Anatomical demonstration, miniature relief, ivory, c. 1700. (After G. Wolf-Heidegger and A. M. Cetto [1967] *Die anatomische Sektion in bildlicher Darstellung*, Basel/New York, fig. 99.)

These phenomena concern not only images provided with captions or verbal instructions of some kind, but also images, which to the point of confusion, look like 'the reality' itself – but I will assure you, that these in fact, are rather depicting some certain qualities and clarifying statements about that reality. This small ivory relief – from the beginning of the eighteenth century – depicts an anatomy demonstration. It may re-

mind us that in fact it is a constructed anatomical reality that we are seeing: the body therefore is raised from the observation table, some of the organs are uncovered and enlarged, others are diminished or even removed in order to elucidate the picture. At first glance it may appear to be a rather realistic depiction of the opened body, but gradually you may recognize it as an *anatomical atlas*, that is, a *body description*, made with certain intention. It is not a picture of a single body, but an anatomical typifying and conceptualizing map of a corporeal landscape.

Therefore, the scientific, visual realism of anatomy does not necessarily imply a depiction of an existing model – but the model itself is more or less created at the same moment as the picture is reproducing it, and the anatomy demonstration table may be characterised as a true knowledge and discourse producing machine, a machine which seems to produce selfdemonstrating pictures. Characteristically, *tabula anatomica* means *anatomy picture*, or *anatomy board*, as well as *anatomy table*.

Recently Gottfried Boehm has called attention to similar aspects of the realistic, scientific as well as artistic representation, in relation to the historical development of the central perspective, which, he says, ‘may be called the first attempt to depict the visual world as at the same time a system of representation and of production’ (Boehm 2007: 106; my translation). I will follow the line of arguments through some corresponding examples:

Fig. 6 A

Engraving by Gérard de Lairese in G. Bidloo, *Anatomia Humani Corporis* (1685), Amsterdam.

Fig. 6 B

Japanese woodcut after de Lairese in Kaitai Shinso (1774) (‘The New Anatomy’), Yedo.

On the engravings by Gérard de Lairese in Govert Bidloo’s *Anatomia Humani Corporis*, published in Amsterdam 1685, the instruments, which have been used to produce the anatomical knowledge, are quite obvious and technically tangible – the other woodcut is a Japanese copy from 1774 of one of the prints in Bidloo’s book. Japanese medicine had up to that time been strongly influenced by the Chinese conceptual anatomy and the doctors now became quite astonished by the visually and technically exhaustive worked-out anatomy of the Europeans and copied these illustrations.

The *skeleton* has been used globally as a death symbol since ancient times. The word comes from the Greek and literally means ‘parched’, ‘wizened’ or ‘mummy’, rather than that *mechanical device*, which since long has belonged to basic school education in anatomy, where the bony parts and members are made mobile among themselves by means of hinges and copper wires. We find this construction for the first time during the sixteenth century, particularly in one of the first modern anatomy books, written by Andreas Vesalius, and published in Basel 1543, but also in the contemporary work of Charles Estienne, the king’s surgeon in Paris.

Fig. 7

Skeleton, woodcut by Francois Jollat after an original drawing by Etienne de la Rivie`re, in C. Estienne (1546) *La dissection des parties du corps humain*, Paris.

The picture shows a famous woodcut from Estienne’s anatomy, published in 1546, which is often mentioned in the medical historical literature as an early example of a demonstration image using *reference lines* –

Fig. 8

Wound-man, woodcut in H. von Gersdorff, *Feldbuch der Wundartznei* (1517), Mainz.

of which an older method of this may be exemplified by a woodcut in a barber-surgeon’s manual, published in Germany 1517. It represents a so-called “Wound-man” and depicts the wounds which the surgeon may meet in his practice on the battlefield. The sharp-edged arms show the varying causes of all types of wounds, at the same time as they serve as pointing referents to those that are treated in the book. But if you look more closely at the woodcut in Estienne’s anatomy you may wonder, for instance, why the reference lines are passing through drilled holes in boards, and why one surface of them is shaded, and the other not. In the literature, this picture has been treated as a pedagogic clarifying anatomical representation of a human skeleton, but as a matter of fact it is primarily an account of how to manufacture one. In Estienne’s text on the page next to it, he recommends putting the corpse into a chest with holes like a corf and sinking it into the river Seine for a year or so. Thereafter you have got an anatomical skeleton as residue, which can be reinforced by copper details as replacements for sinews and so on. So, the skeleton as an *anatomical* concept is made as a residue of the mechanical manufacturing of a mannequin, an anatomical jointed doll...

Scientists of older times paid special attention to the *name* of the object of knowledge, and characterized it by expounding greatly on etymology as well as mythology: the name of the object was understood as if was itself characterizing the meaning of the object as well as its external appearance. But classical natural science became gradually more and more concentrated on the *physical* appearance and qualities of the object, recognized by meticulous empirical observation. It is simply a question of a shift of the form of representation: the verbal and conceptual one, based on dogmatic, handed-down assertions by the ancient authorities, successively completed, and later on replaced, by iconic, depicted representations, with pretensions to create *visual* realism or even naturalism. At the same time one can reverse the problem and say that the borderline between verbal and visual media which later has later been understood as quite obvious, during an earlier period often appears to have been much less clearcut.

History is full of such contradictions: during the beginning of the eighteenth century the modernly educated Swedish doctor Lars Roberg, who founded the first clinical teaching hospital in the country, also published the first printed book on anatomy in the Swedish language. Yet his book has, in fact, not one single explanatory picture – there is only a flood of words. Actually, you could say that Roberg had an untroubled ingenuity, using the verbal language in a pictorial, even poetic way, to find new and strong words for a pragmatically useful anatomical terminology in Swedish. The booklet was intended as a textbook for barbers and surgeons in anatomical science, which had hitherto been the preserve of the academic physicians. To every part of the human body Roberg gives the Latin and Greek designations, and after that, those of the modern languages, including the terms in Swedish. At that time there was hardly any standardized Swedish written language beyond that of the Bible and the state offices, so when Roberg cannot find the adequate words, he does not hesitate to switch to vernacular and dialectal expressions, even slang. And when he is still not satisfied he quite simply invents new powerful words of his own, using words even as pictures on all sense levels of a picture, representing from the literal and material to the figurative and conceptual. Roberg's anatomy book is still a *verbally* anatomic object: there is not one iconically representing picture, on the other hand it is very poetic and pictorial in its graphic and orthographic expressiveness, at least to a modern reader.

Thomas Bartholin, the most famous anatomist of seventeenth-century Denmark, has made some striking observations concerning the differences between the old conceptual and the new visually realistic way of apprehension and understanding in the natural sciences. He criticises some contemporary scientists, who according to ancient custom, preferred reading the books by the authorities, instead of directly reading Nature itself, or, concerning anatomy, the opened human body and its parts. He writes (Bartholin 1659: 12 f.; 1982, p. 192):

Many academic scientists are quite confused when they are exposed to Nature itself. Even if they can say many words about the plants, dispute about the animals, write learned books about the metals, and quarrel with each other about the essence of things, they cannot recognize other than cabbage and domestic animals when meeting Nature itself. The reason is that they create the nature in their own brains and catch it in their own clever thoughts.

Bartholin is here talking about a supposed *natural object of knowledge* ('Nature itself'), which now seemed to be visually accessible to the avant-garde scientists of his time, compared to older times' mode of apprehension of sophistic, verbally defined, conceptual objects. But he forgets that the method of partition by the anatomical knife, the creator of modern scientific realism, is yet implicating an image code that conceals the fact that even this as natural apprehended object is a confusing construction, a kind of projected significance, which has taken place in the object.

Oddly enough, Bartholin's observations of the new anatomical knowledge of his time may call to mind Vilém Flusser's characterisation of the *technical image of photography* (Flusser [1983] 2000: 14–20). This image, he asserts, is not based on some abstraction of the actual world, as is the case with traditional pictures like paintings and drawings, but the technical image is based on *texts, concepts and programmes*, which in the image form some sort of visualised discourse. Flusser says that 'traditional images signify phenomena whereas technical images signify concepts', and he continues:

They are metacodes of texts which / - - / signify texts, not the world out there. The imagination that produces them involves the ability to transcode concepts from texts into images; when we observe them, we see concepts – encoded in a new way – of the world out there.

Thus, with 'technical image' he does not aim at the illustrations of classical natural sciences made by means of the table, the scalpel and the pen, but the photographic image, invented circa two hundred years later. It is interesting to notice that the classical anatomical image seems to offer an illuminating and quite concrete precursor to this important medial turn. – Flusser writes:

Technical images are difficult to decode, for a strange reason. To all appearances, they do not have to be decoded since their significance is automatically reflected on their surface – just like fingerprints, where the significance (the finger) is the cause and the image (the copy) is the consequence. The world apparently signified in the case of technical images appears to be their cause and they themselves are a final link in a causal chain that connects them without interruption to their significance: The world reflects the sun's and other rays which are captured by means of optical, chemical and mechanical devices on sensitive surfaces and as a result produce technical images, i.e. they appear to be on the same level of reality as their significance. What one sees on them therefore do not appear to be symbols that one has to decode but symptoms of the world through which, even if indirectly, it is to be perceived.

This apparently non-symbolic, objective character of technical images leads whoever looks at them to see them not as images but as windows. (Flusser [1983] 2000: 14f.)

*

Over the entrance to the anatomy observation theatre in Copenhagen, built in 1642, there was an inscription in Latin, which may be translated as:

Wanderer, here you may see both bones and opened
corpses, here Anatomy dissolves the work of Nature, and
joins it again. (Bartholin 1662: 5; 1982: 200)

So anatomy – the word means literally 'cut -' or 'divide into parts' – is said to first divide and dissolve the natural object into its components, in order to thereafter unite them again. That is to say: *in another way*, by transforming them with the help of a specific, so to say, knife-edged code, into a new object of knowledge, called *the ana-*

tomical object.

Traces of the above-mentioned dissolving and rejoining process now have disappeared. Instead one seems to be standing before the naked truth of reality itself, even if, as a matter of fact, it is a question of *another* and *new* object, an artefact, historically man-made, not the natural form of the former object.

The eyes of the beholder are attentively following the dividing method of the anatomical knife, as does the draftsman's pen. This situation constitutes the origin of the classic scientific realism and is implying a representational, visual code, which conceals the fact that even this object, to the point of confusion, is a construction, yes, a type of projected meaning and conceptual naming, which has affected the whole object and transformed it into a predication. Or, as it is said in the invitation programme to the anatomy theatre of Lund University, built after the design of architect Carl Hårleman 1736 and located in the old university building, "Kungshuset", in the park of Lundagård:

Almighty God, about whose omnipotence, wisdom and goodness *the intestines themselves are telling...*

(von Döbeln 1736, see Fürst 1916: 844; my italics)

The anatomically divided human body possesses just this revolutionary characteristic: it can speak itself and convey its meaning in a language which is transparent and obvious to the enlightened gaze.

Fig. 9

Magnus Wallin, *Exercise Parade*, 2001. Still from video.

In a nightmarish video, *Exercise Parade* from 2001, by the Swedish artist Magnus Wallin, there is, among others a sequence from which this still is taken, with a skeleton frog-jumping over an *écorché* or a "muscle-man" as in a modern *Danse Macabre*. If you look closer you may see that the latter is stigmatized by its own anatomical, verbal terms, which also serve as sharp-pointed reference lines. Modern human beings seem to wear a body – or perhaps carry it – which represents his or her own anatomical, scientific description.

Fig. 10

Left: Engraving after drawing by Pietro da Cortona, c. 1610. (From: *Tabulae anatomicae...*, [1741] Rome).

Right: Original anatomical drawing by da Cortona.

<<http://special.lib.gla.ac.uk/images/exhibitions/Bodyimages/cortona1.jpg>>

The baroque painter, Pietro da Cortona, planned to reproduce his anatomy drawings for artists, but they were first published much later. On the engraving to the left we can see that in fact *Anatomia* is a part of the same classic and eclectic order as *Architectura*. Here the two are combined in a characteristic way: both of them belong to the same idealistic and grammatical order. The proportions of the female model belong to a higher principle than the body itself and are visually echoed in the borders and profiles of the pilaster and masonry. The folds of the unrolled skin, which is framing the cartouche-like wound of the wall as well as of the human body, belongs to something perishable from which we can gaze into more ideal principles. In her weak body there is a foetus: it stands out distinctly in the reiteration on the wall, close to the body. It's a strange and frightening fact that it is rather a matter of *self-dissection* than *self-demonstration*, where a wide, artificial body-opening has been made, and where the organs of her own body are cut out, demonstrated and described as objective parts of a rational, mostly mechanical anatomy, distinctly separated from her ego, her self. Horrifyingly enough, she shows no emotional expression of this terrible and grievous treatment. – As you may see in both these examples from da Cortona's work, the human corpse wears the picture of his or her anatomy as a mirror or a dress of some alleged physical, scientific and categorizing truth.

Fig. 11

Self-dissecting. Engraving by Gasparo Beccera in J. de Valverde, *Historia de la composicion del cuerpo humano* (1550), Rome.

The *self-demonstrating* and the *self-dissecting* themes seem to be historical twins, who are often visible and performing together in a similar way and context as the anatomical knife, the sharp gaze and pen historically and theoretically are following each other. – Here is an engraving in Juan de Valverde's anatomy with one dissected figure dissecting another one. This picture was made in Rome during the late renaissance epoch, which in art history is called *the Mannersm*. This is an era which in the *history of sciences* is known as the beginning of the epoch of the classical natural sciences with their thorough empiricism and visual realism. In art history, however, it is a problematic period full of sharp contradictions and panic-stricken stress at different levels. In

the works of art these symptoms appear in the virtual space as well as in colour and composition: between void or emptiness and repletion, between light and darkness, alienated and narcissistic individualism, dream and wakefulness, between eager naturalism and exuberant decorativization, between mournful melancholy and exhilaration. Not without reason, the epoch is called by the art historian Arnold Hauser “the first modernism” (Hauser 1964). – I mean that it is a productive challenge trying to at the same time see and bring together these two, more or less contradictory, but connected sides of this visual culture.

*

An attempt should be made to sum up the answer to the question: “Is there really something which might be called a 'self-demonstrating picture' – even within scientific imagery?” The answer might be: Yes – and no. In the discussed material, there are undoubtedly some pictures that pretend to be 'self-demonstrating', but that which is demonstrated is mostly not the nature of *things*, but of concepts, thoughts, ideology, maybe fantasies. When something's natural form of existence is said to be exposed, you will principally meet, at least in my older anatomical material, a highly constructed nature and reality, mediated by a large set of instruments, vehicles and observation machines – and these mediations unavoidably transform the said nature into some sort of culture.

The idea of a 'self-demonstrating picture' seems to have emerged within the classical natural sciences replacing verbally founded determinations of older times that called for linguistic literacy and certain education. The *visual* language seemed to better agree with what was observed by personal observation, and was therefore meant to be a more democratic medium as well. But you may also recognize that in older times the roots of the visual and the verbal often seemed to run together – in particular we shall not underestimate the significance even of the visual and graphic qualities of the word and text.

Therefore, may this old experience be repeated: we are often confronted with a world of self-referring signs, where what seems to be ‘reality’ or nature appears to be a *second nature*, which is identical with, or can only hardly be distinguished from, those representations which are used to describe them...

Based on the history of classical anatomy you may say: The anatomy seems to create

a remarkable, realistic pictorial code – an obvious precursor to Flusser's photographic technical image – which casts together in one single, self-demonstrating shape, an object of knowledge with the properties of the natural object itself. This is the paradox of the self-demonstrating picture's *double* illusion of communication: on the one hand it seems to be a picture of the natural appearance of the object, but on the other it is, in fact, simultaneously a depiction of a cognitive *concept*, a visual *name* of this object. It is a conditional and man-made classification, which is embodied into the body itself.

References

Barthes, R. (1964) 'Rhétorique de l'image', *Communications*, November (4), 40-51.

Bartholin, Th. (1659) *Oratio in obitum Henrici Fuires*, Hafnia. (My translation from the modern edition in Danish: Bruun, N.W. & Loldrup, H.-O. (1982) *Thomas Bartholin: Cista medica hafniensis*, Dansk Farmaceut Forenings Forlag).

Bartholin, Th. (1662) *Domus anatomica hafniensis brevissime descripta*, Hafnia. (My translation from the modern edition in Danish: Bruun, N.W. & Loldrup, H.-O. (1982) *Thomas Bartholin: Cista medica hafniensis*, Dansk Farmaceut Forenings Forlag).

Boehm, G. (2007) *Wie Bilder Sinn erzeugen. Die Macht des Zeigens*. Berlin: Berlin University Press.

Flusser, V. ([1983] 2000) *Towards a Philosophy of Photography*. London: Reaktion.

Fürst, C. M. (1916) 'Theatrum Anatomicum Lundense', *Svenska Läkaresällskapets handlingar*, 816-849.

Hauser, A. (1964) *Der Manierismus: die Krise der Renaissance und der Ursprung der modernen Kunst*, München.

Ivins, W. M. Jr. (1953) *Prints and Visual Communication*, London: Routledge and K. Paul.

Roberg, L. (1718) *Lijkrevnings Tavlor*, Upsala: Joh. Henr. Werner.

Robin, H. (1992) *The Scientific Image: From Cave to Computer*. New York: Harry N. Abrams.