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„Art Physiology“ – standardizing production and experience of art and industrial products.

Years ago while I was writing my dissertation on the perception of Neo-Impressionism in Germany, I leafed through catalogues and books and found a fish skull (of the hake species) listed in the catalogues of two exhibitions. These exhibitions took place at a museum in Krefeld, in northwest Germany, around 1900. The titles of these exhibitions were Colour Show, and Line and Form, respectively. That says there was an implied relationship between the fish skull and arts. At the time I wondered what a fish skull might offer an artist, or artisan, or designer in terms of actual artistic value. The subject of my paper can be described as a discussion on art education around the 1900s. It involves a reshaping of perception regarding art creations and the development of consumer taste. How do artists and commercial designers develop an artistic eye? My talk break up in several parts: an general introduction, a description about what did happen in these exhibitions, an interpretation of these exhibitions and finally a summary including a link to the debates about the so-called polyfunctionality of arts in the 1960's.

First: What I like to show is, that at the turn of the 20th century, the relationship between fine arts and applied arts involved the creation of sensory and physiological standards for the creation and perception as well as the use of fine art and product design. As far as I can see, this process of creation standards began with the formulation of theories of colour and line, was later to found under the theme: physiology of art, and under the various educational programs for art students. Art exhibitions seem appropriate for such an examination. Because the aim of an exhibition is to communicate standards of artistic thought and practise to the viewer. For this reason, I decided to analyse this transfer of standards and knowledge using the Krefeld exhibitions as an example. Just another information: While looking through the catalogues I discovered that the exhibitions were originally conceived as related exhibitions to be shown together, but instead ended up taking place as separate events, one in 1902, the second in 1904. I chose these particular exhibitions for several reasons: First, because of the relationship between industry and art. Here is the first point that the exhibitions took place in an industrial city, which by the second half of the 19th century had acquired a reputation for an exemplary collaboration between artists, the museum and commerce. The second point is the link to Henry van de Velde. Van de Velde was one of the most influential protagonists of the German arts and crafts reform movement. He was involved in the organisation of the Krefeld exhibitions. And we know, that van de Velde had Krefeld in mind when he established the *Arts and Crafts Seminar* in Weimar in 1903. This seminar was to become the cornerstone for the future Bauhaus School. The third point is, that these exhibitions were initiated by the *Danish Museum of Industry* in Copenhagen, which donated to the *Krefeld Kaiser-Wilhem Museum* a collection of colour plates including all the physiological knowledge about the functions of the eye.

The second reason for my selection seems more basically. These exhibitions had a direct analytical focus on the basic instruments of producing both fine arts and applied arts. It implied an idea of intersection of the principles using in fine arts and applied arts. We will see more about this intersection using the handbook literature about colour theory.

The third reason is, that the aim of these exhibitions was the “c o n s c i o u s education of the eye”.¹ Friedrich Deneken, the curator, was convinced that “all industries whose products appeal to taste should constantly be striving to increase the material refinement of their goods.”² Deneken was not alone with this persuasion in Krefeld. For instance: The Prussian Ministry of Education and Cultural Affairs had reacted to the growing international renown of the Krefeld velvet and silk industry by founding three educational establishments for art: in the middle of the 19th century the *Technical College for Textiles*, and around 40 years later the *Kaiser-Wilhelm-Museum* and the *Trade, Arts and Crafts School*.

I'll come to my second part of the talk: What happened in these exhibitions?

A remarkable arrangement awaited the visitor: It wasn't until he reached the end of the show that the visitor arrived in the realm of fine arts. There he encountered paintings by the German, the French and the English realists, impressionists, neo-impressionists and symbolists. At the end of the show he also found the sculptures of Auguste Rodin and Constantin Meunier, the reproductions of the decorative murals of Charles Mackintosh as well as the drawings of the German, French and English romantics. He could marvel at the sketches of modern artists such as Vincent van Gogh, Paul Gauguin, Peter Behrens, Beardsley and McNair.

¹ Deneken: *Farbenschau im Kaiser-Wilhelm-Museum* p. 8.

² Deneken loc. cit. p. 8.

But at the beginning of the show the visitor was met with collections of exotic butterflies and beetles, various types of coloured precious stones and rock, skulls of elephants and hippopotami, bulldogs and Alsatians, golden eagles and ground hornbills, herrings and hakes. He saw octopus and squid specimens in formaldehyde and electroplated crocodiles; he could marvel at the skeletons of pinecones and oak leaves. There were halls of colour plates, oriental carpets, weavings, wallpaper designs and dishes to explore. People were confronted with cranes for using construction. In addition, there were sketches and sculptures of nature studies done by the students of the *Krefeld's Trade, Arts and Crafts School*. The visitor perused the most significant productions of Western cultural history by studying entire halls of photographs, plaster casts and reproductions of paintings. He was introduced to Japanese woodcuts and stencil prints. Folios traced the history of European calligraphy. Models of racing yachts, luxury steamers and war ships as well as photographs of the Eiffel tower and modern train stations that set him off daydreaming, until crankshafts and furnishing fabrics brought him back to the here and now.

I come to the thir part of my talk: How can we interpret such an arrangement? First the titles: The titles of the exhibitions indicate that the items I have just enumerated represented the visible substratum of the era's understanding of colour, line and form. So that the exhibits on loan represented nothing else but the order, structure, function, usage, handling and perspective regarding standards of colour, line and form popular at the time. In addition, the exhibition wove the objects into a visual tapestry, in other words, the sense of an exhibition could be grasped without the need for explanation. The common features of the exhibits were to become immediately accessible to the visitor in the act of viewing. Thus the racing

yachts resonated with Rodin's sculptures while the *Danish Museum's* colour plates reflected the colour harmonies in the paintings of Signac.

If a visitor found himself unable to unravel the conundrums posed by herring skulls and crankshafts, he could refer to the last two pages of the exhibition's catalogue. The pages listed the book titles available at the museum's library. It held an impressive collection of works by Hogarth and Semper, Ruskin and Crane, van de Velde and Muthesius... and the list goes on. (The collection of books was gathered together especially for the visitor of the exhibitions.) A cursory glance at the spines showed that readers would be introduced to debates on style and technique, design and mechanical drawing, colour sense and evolution, and on the education of artists and laypeople. That says, that the idea behind the reference collection was to make the user familiar with the social responsibilities of arts, crafts and industry as formulated by Ruskin and Semper and later taken up by Velde and Muthesius. Deneken's reference library avoided the perception that aesthetic production could be neatly divided into fine arts and applied arts, just as in the exhibition itself art, nature, craft and industry were resided in harmonious juxtaposition.

Let me make the next point of my interpretation:

To uncover the visual culture on display, we need to know the placement of the butterfly collections, squids, plaster casts and photographs. To do so, we will leave the library for a moment and return to the exhibition. As usual, the visitor learned of an exhibit's particular placement by means of a sign placed adjacent to it, which denoted its origin and provided clues to its normal usage. Since these signs no longer exist, I proceeded to the Krefeld Museum's archive to look through Deneken's lists of incoming and outgoing post (in other words: the office of the exhibition). What it revealed is that nearly all of the nature exhibits had been on loan from artistic institutions and not, as one might have assumed, from scientific ones/institutions. For

instance, the skulls, the electroplated crocodile and the various plaster casts and photographs – all came from Krefeld's *Technical College for Textiles* and the recently established arts and crafts school.

The circumstance, that a visitor could find a fish skull in such an eclectic exhibition, attests to its function as a teaching device to instil an appreciation of form, construction and function. But what could a fish skull offer an artist or designer in terms of actual educational value? The answer to this question could be found in one of the many books belonging to the library, for instance Georg Hirth's *Aufgaben der Kunstphysiologie (Responsibilities of Art Physiology)*. The work was published in 1891 and distinguished Hirth as an author well versed in both art production of the time as well as the physiology of the senses and sensual perception. With his book *The Responsibilities of Art Physiology*, Hirth wished to help creative individuals get off to a better start by reshaping their psychophysical perception. (I quote from the introduction):

“Not that young people are to be fed with theoretical debates on the structure of the eye or on optics and colour theory, but rather the results of psycho-physiological research is to be granted a prophylactic, pedagogical role.”³

Taking this position, Hirth departed from the art academy's classical concept of education, which, in the development of art and artistic taste, had primarily put its faith in the educational characteristics of the exemplary models of past artistic epochs. Hirth, on the contrary, held that copying model drawings and making plaster casts of classical works was harmful when practised at the beginning of an art education.⁴ Referencing

³ Hirth loc. cit. p. 4f.

⁴ Georg Hirth loc. cit.: “Such a plague is...the prejudice that has worked its way into our art instruction everywhere – from the academies down to the primary schools – that one can

authorities in the science of the physiology of the senses, Hirth postulated that any reshaping of aesthetic perception had to begin with the intense observation of nature. It would be a "crime against young people" to ignore the tenets of psychophysics in visual instructions, artistic training most of all. Instead, Hirth called for an eye capable of perceiving the structure and workings behind an object, natural or manmade. An artistic taste was to be acquired that would not be determined by "abstract principles and beautiful ideas," or by a "knowledge of names, dates and learned interpretations." Rather taste should distinguish itself by a vitality of visual perception. Artistic taste according to Hirth was largely constructed by the ability to "recall always a great number of pictorial memories, either as individual comparisons or as homologous types to be related to the subject at hand."⁵ The peculiarity of perception to relate itself to memory was the crucial factor that led Hirth to reverse the traditional sequence of artistic training. Hirth laments,

"Thanks to the model, which replaces the study of nature, the beginner is made a slave of another's will, of another's insight."⁶ "He...studied...it as if it were nature itself...committed it as well as possible to memory."⁷

Hirth's tenets and observations were in no way novel. As an example, I cite Moritz Meurer, who oversaw the teaching collections of the arts and crafts school in Berlin. 1884, he made the following comment:

"The encouragement of the imitative instinct has caused the independence of formal thinking to suffer. This kind of artistic study, at least in the many

more easily learn to understand and artistically master nature by approaching it in a roundabout way rather than directly. In other words, it is the idea that before undertaking an actual study of nature, one should complete a preparatory study of pictorial translations of nature, using drawing and plaster models and so forth...Today I wish to try to demonstrate the mistakenness and injuriousness of this approach with a few new...incontestable physiological arguments." P. 2f.

⁵ Hirth loc. cit. p. 308.

⁶ Hirth loc. cit. p. 60.

⁷ Hirth loc. cit. p. 55.

branches of arts and crafts, has led to the disappearance of the ability to recognize form in natural models, as well as the disappearance of the notion that nature could be used to refresh a sense of form.”⁸

Apparently Deneken was in full agreement with Hirth and Meurer. There is no other way to explain why the Krefeld exhibitions began with natural objects rather than taking as usual the exemplary models of Western cultural history. It also explains why the skull of just one animal species was not enough and why the study of nature could not be restricted to the human form. Hirth’s inclusion of the physiology of the senses in his examination of the artistic process of creation made it plausible that a constant need to invent forms required a structural-sensitive eye capable of dissection and abstraction. This eye was lost in the practice of imitation and could only be attained by the stimuli of an abundance of impressions.

I come to my last point of the interpretation - the question that set off my search – How did psychophysical knowledge enter into arts and crafts, and the fine arts? And ones again: the reference library can help us to retrace the path taken by the sensory-physiological argumentation into the fine and applied arts. I’ll show this an the example of the colour theory. Here is the main point: the library possessed not only the newest colour theory. There were also the colour theories of Michel-Eugène Chevreul, Ernst Brücke and Odgen Nicholas Rood. Chevreul’s colour theory is one of the first, which included scientific knowledge about the physiology of the eye. Faced by a practical need, this chemist and director of the Parisian tapestry factory had solved a basic scientific problem related to colours. He

⁸ Meurer loc. cit. p. 19.

discovered the law of simultaneous complementary colour completion. A concrete example: He discovered that when small colour designs by artists were transferred to large tapestries, red threads had to be woven into the green parts and green threads into the red areas. No dye, regardless how close it was to the pigment, could replace this trick. Ogden Rood's colour theory is one of the first, which is free of all distinctions in addressing the handbook to applied and fine arts. Rood didn't make any differences between the use of colours according to the physiology of the senses and the conventional use of colour. Furthermore, Rood's colour theory reflected one of the most profound introductions to the physio-optical and sensory-physiological theorems at the time.

Against the backdrop of these cursory readings we can say that the handbooks on colour reproduced the shifts and superimpositions that took place between the sphere of fine arts and the sphere of craft and industrial production.

To sum up:

The juxtaposition of artistic, natural and scientific objects at the two Krefeld exhibitions made visible a far-reaching "scientification" in the artistic aesthetics. This affected both the fine arts and applied arts, while the viewer is kept well in mind. In fact, it was these very viewers who as potential consumers were being educated in the new physiologically oriented norms of taste. Furthermore, the issue regarding the curious juxtaposition of the exhibits brought a concept of art instruction to light that pointed to pedagogical concepts like those espoused by the Bauhaus School. Further considerations on the aesthetic reflections of both

exhibitions would bring us to question the hierarchies and appraisals of art movements aiming for autonomy. Hans Robert Jauß and Helmut Pfeiffer explained this “new polyfunctionality of art” in terms of the “waning validity of idealistic aesthetics”.⁹ The two groundbreaking exhibitions, above all, launched the polyfunctionality of art in the 19th century and its social, practical and didactic functions. This fact stands against the debate over autonomous aesthetics of the art for art sales of the 19th century in the 1960s. With this link I'd like to open the discussion. Thank you very much.

⁹ Hans Robert Jauß: *Art Social and Art Industrial. Problems of the Autonomy of Art*, P. 10. Cf. also Otto Marquard's article *Complete art work and identity system. Reflections concerning Hegel's criticism of Schelling* in Harald Szeemann's, *The inclination to the complete works of art. European Utopias since 1800*. Exhibition catalogue. Zurich, Vienna, etc. 1983, p. 40-49.