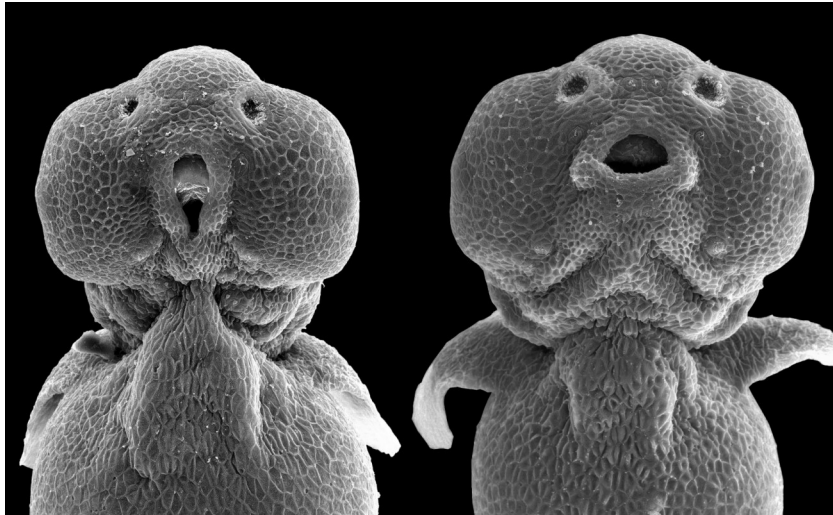


By aesthetic, I mean responsive to the pattern which connects.

Gregory Bateson



Contents

Introduction	1
Part I: The four types of beauty	
1. Premises: What are we talking about?	17
What is beautiful? – Beauty vs. happiness – What is aesthetic? – Categories and values – Contextualization aka Framing – Subjectivity	
2. Beauty in the brain and in the body	29
Empirical aesthetics – Why beauty is more than pleasure – Beauty as a Meta-Emotion – Cognitive fluency – Being moved – Goosebumps and other body reactions	
3. Elementary aesthetics: E-Values	47
What does elementary aesthetics mean? – Problems of evolutionary explanations – Individual differences – Limits of elementary aesthetics	
4. Epistemic aesthetics: O-, S- and K-values.....	59
The difference: beauty in signs – A first approach – The model – Personal preferences – Making sense of sensuality	
5. O-Values	79
What makes objects and patterns O-valent? – Syntactic and semantic O-values – Symbols, signals, ideologies	
6. S-Values	91
What makes relationships S-valent – The diversity of S-valent phenomena – $S = O$?	
7. K-Values	115

	What makes an action K-valent – Suspense – Experience of Creativity – Flow	
8.	How values interact	135
	Cascades of beauty – Solving the paradox of ugliness – Kitsch – Fashion	
9.	Memories	145
	Our memory is cheating us, also about beautiful moments – Retrospective aestheticization – Convergence of Happiness and beauty	
	Interlude: The beautiful and the good	151
	Aesthetics and morale: the intersections – How morality shapes aesthetic preferences and vice versa – Evolution: How beauty came into the world – Aesthetics: the seeds of ethics?	

Teil II: Beautiful learning

10.	Learning: Cognitive sensitization	169
	The small differences – To have a clue of a subject	
11.	Worlds of knowledge and mental landscapes	175
	A world of knowledge – Mental landscapes – From one landscape into the other	
12.	The pathway of pure curiosity	193
	Experience and overview – The motives of hobby researchers – Innovation and diffusion – Aesthetic values as signposts	
13.	Style	205
	What is style? – Form, meaning, space: The structure of styles – Aesthetics and style – Styles are like topics	
14.	Learning to be creative	219
	Learning to learn to learn – Learning to learn aesthetically	

Interlude: The beautiful and the true	227
Trust – True beauty, beautiful truth? – The changing criteria of beautiful theories	
Teil III: Aesthetics of Science	
15. Science as a cognition style	245
Arts <i>in</i> Science – Repleteness: The difference between the arts and science – Beautiful research – Exact and hermeneutic	
16. Motives of knowledge: Beautiful topics	255
Aesthetic momentums in scientific biographies – O-Topics – S-Topics– OS-Topics	
17. The aesthetics of the academic disciplines	273
Case study: Geography – Geographical motives of knowledge – Parallels in other discipline – Subject-specific dreams	
18. Aesthetics and <i>Realphilosophie</i>	283
<i>Realphilosophie</i> and its aesthetics – Epistemic aesthetics as Metascience	
Epilog	291
Literature/picture credits	291
Index.....	300

Introduction

The question of why Liefdefjord is "beautiful" deserves the same attention as the problem posed to us by a fugue by Bach.

Alfred Andersch, High Latitudes

A child at the petting zoo, with the goats: How it feels to pet them and when they lick your hand! Beautiful!

Or a chemist, who discovers an interesting property of a new material during her experiments. She is already thinking about possible applications and patents. Beautiful!

A sculptor whose latest sculptures convey exactly what he had in mind. Beautiful!

Which is the pattern which connects the three? Considerations about what we like and what we don't like characterize our entire everyday life, from a shopping tour to parliament elections. This is already evident in our daily chats with other people: If we do not talk about important news, then mainly about what we like and what we don't. It can be anything: Movies, clothes, travel, books, pubs, apartments, men, women, parties. There is always this range between "Great!" and "disgusting", between "I love it!" and "I can't stand it!"

At first glance, it looks as if we use the word "beautiful" inflationarily: beautiful experiences, beautiful news, beautiful lectures, beautiful encounters. That's how we talk, but it seems to have nothing to do with the beauty of a Rilke poem or a Da Vinci painting. Or does it? In this book I want to show that there are good reasons for a very broad concept of beauty. At the same time, I will place a special emphasis on the cognitive dimension of aesthetic processes. In my view, this is the key to understanding the phenomenon of beauty.

Our everyday life is full of insight-oriented processes: We have conversations, we think, we research and try things out. We learn, read newspapers, visit museums and gather experiences. And everywhere, aesthetic experience plays a significant role. The same is true for those who share knowledge and ideas themselves by giving a lecture, putting together a news program, teaching children, designing an art exhibition, coaching a team, or giving psychological advice to people. These knowledge-creating activities are also accompanied by aesthetic considerations: "Which ideas will find resonance? How can I communicate them effectively? What stylistic means are appropriate?" These questions form the common basis of scientific, journalistic,

educational, artistic and many other activities. They affect all areas of human communication.

In this book I argue for an aesthetics that is integrative in several respects. Integrative, because I like to convince you, the experience of beauty permeates our lives. Beauty is not limited to art or to special sensual moments. It is existential. One can suffer from a lack of beauty.

The aesthetics I am presenting here is also integrative because it brings together findings from a wide variety of sciences. This has rarely been the case in the study of beauty. The history of modern aesthetics is essentially characterized by two approaches, which the 19th century physician Gustav Theodor Fechner distinguished as "aesthetics from below" and "aesthetics from above. The "aesthetics from above" is the older one, that of traditional philosophy and literary studies. However, these "beautiful" theories had apart from personal experiences no empirical basis. They were well formulated, but just as abstract as they were speculative or essayistic. Even Adorno's famous "aesthetic theory" did not deal with the question of beauty at all, but rather with the social function and interpretation of art – which is quite another subject.

The "aesthetics from above" thus did little to answer concrete questions such as "Why do many people now find this picture beautiful?" And it considered beauty almost exclusively in connection with art and perhaps with landscapes. The beauty that we feel at the sight of people, objects of daily use, or even in dealing with scientific theories was excluded or at best dismissed as a marginal aspect. These theories were therefore not very suitable for a general everyday use.

As a counter-project, "aesthetics from below" in the tradition of Fechner strove very hard for an empirical basis. It did not reduce aesthetics to art, but regarded the experience of beauty as what it is: an everyday psychological phenomenon, that can be studied in experiments. Experimental psychology has found out a lot about the effect of certain colors or musical motifs. It has also found out which geometric patterns, faces, and landscapes we find attractive and which we do not. More recently, this research has been refined and enriched by modern brain research methods. They were able to confirm to which stimuli the "reward center" responsible for the sensation of "pleasure" reacts.

But it was precisely in these attempts that the great weakness of this "aesthetics from below" became apparent: just as philosophy and literary studies have strongly transfigured beauty and reduced it to the high spheres of art, the profane conception of the experience of beauty as a "feeling of pleasure" is at least as strong a reduction, for it does not answer many questions. Experimentally, for example, it can be shown that for most people symmetry is a feature that makes patterns more

attractive. Symmetrical faces are considered more attractive than asymmetrical ones. But what about the Mona Lisa, who does not smile symmetrically at all? Or the faces painted by Picasso? Harmonic sounds are considered more pleasant than disharmonic ones. Nevertheless, jazz with its disharmonic chords is also very popular. These examples alone show that beauty is not quite so simple, and that apart from formal properties of an object, the context of experience plays a major role in aesthetic evaluation.

Experimental "aesthetics from below" also has difficulty explaining individual differences: Why are tastes different? Or the phenomenon of fashion: Why do we get excited about things today that we would have shaken our heads about five years ago? And why do some pieces of music and clothing from the past no longer appeal to us at all?

Neither the aesthetics from above nor that from below can explain the experience of beauty comprehensively. This is also due to the fact that both movements started from an assumption that is now outdated: In the 18th century, Alexander Gottlieb Baumgarten, the founder of modern aesthetics, defined aesthetic experience as "sensual" cognition - as opposed to "rational-conceptual" cognition. The "beautiful" was thus assigned to the realm of the senses and feelings, to be strictly separated from everything "rational" or "cognitive," as is often said today.

The original meaning of the word was different: In Greek, *aisthesis* meant both "perception, cognition" and "sensual feeling. Aristotle's *Metaphysics* begins with the sentence: "All men strive for knowledge; this is proved by the pleasure of sensory perception [tōn aistheseōn]". *Aisthesis* is thus here directly linked to knowledge! The word integrates both aspects, much like the English counterpart "Sense" or the German "Sinn", which allows us to talk about "making sense" as well as to have sensual moments. To have both "sensible" thoughts and a sensitive perception. We can engage emotionally in an experience "with all our senses."

This is another reason why an integrative approach is necessary: The goal is an aesthetics that overcomes the "either-or", that takes into account the sensual as well as the sensible. All processes of perception and cognition are regarded as potentially aesthetic. "Beauty" and "rationality" are not opposites. One does not have to be a mathematician to recognize this.

So both movements - the aesthetics from below and the aesthetics from above - are stuck halfway. But at least, to stay in the metaphor, they have gone far enough towards each other to meet. The insights that empirical aesthetics has gained in the last 20 years help in this. But it also needs a philosophical synthesis, an overall view, a re-sorting and

structuring of the findings, in other words: an integration of philosophy and psychological research.

The recipe for this comes again from Gustav Theodor Fechner. He was one of the first to recognize that there are different levels of aesthetic experience. He distinguished between "primary formal principles" and a "secondary principle of association". Among the formal principles he counted non-contradiction, clarity, unity in diversity; by association principle he meant above all the symbolic meaning of an object. His concept has to be modified and extended today. But the approach of differentiate between different levels of aesthetic experience pointed exactly in the right direction.

This is confirmed by the well-known aesthetic paradoxes: something which is "ugly" and unpleasant at first can be perceived as "beautiful" on a higher level, for example, because it "depicts an unpleasant state in vary appropriate way". The philosopher Nelson Goodman calls this state of affairs the paradox of ugliness. There is also a paradox underlying kitsch, for the kitschy is indeed beautiful - but too beautiful to be (really) beautiful. As we will see, such apparent paradoxes dissolve elegantly when we distinguish different kinds of beauty. For this reason alone, this integrative approach of aesthetics is worthwhile.

So what can we expect from a contemporary theory of beauty?

- It should be based on the current state of empirical aesthetics, social and cognitive psychology as well as brain research, integrating the partly very different findings.
- It should explain aesthetic phenomena on the one hand, while leaving room for individual preferences on the other. Tastes will continue to differ. But this does not mean that aesthetic values are completely arbitrary.
- It should provide arguments and criteria to better understand and justify one's own aesthetic judgment. However, it should not claim to be normative, i.e. it should not presume to "scientifically determine" what is beautiful and what is not.
- It should explain everyday phenomena such as fashion or the paradox of ugliness.

Back to the beginning: Which is the pattern that connects the concert-goer and the consumer who is happy about his new garden bench? The epidemiologist who comes across a computer model that describes the spread of a pandemic very realistically, and the juggler who has finally

mastered her new trick? To give an answer to this question is the aim of this book.

It has three parts: In the first, I will sketch the outlines of a theory - one might even say an organizing model - of beauty. I will show why the feeling of beauty can best be described as a meta-emotion, and how well this fits with the findings of brain research and the new empirical aesthetics. At the core of the model are four types of aesthetic categories, which I call O-, S-, and K-values, respectively. At the end of this first part I will show how these values can interact with each other and how the aforementioned paradoxes of ugliness can be resolved.

Part 2 is devoted to the aesthetic dimension of learning. I will consider learning as a sensitization of cognitive processes and present it in the form of a journey through "cognitive landscapes ". It This will also show how creativity can be "learned".

Finally, in part 3 I will deal with a special form of cognitive processes, namely the aesthetics of science. I will try to show that - and how - aesthetic motives shape all branches of science.

Anyone who, like me, grew up in Frankfurt and regularly cycled past the Alte Oper occasionally spends a few thoughts on the meaningful inscription on its portal: "DEM WAHREN SCHOENEN GUTEN". I felt that a book about beauty would be incomplete if it did not also clarify its relationship to these other two values: How does ethics relate to aesthetics? Is there a connection between beauty and truth? Indeed, interesting points of contact emerge here. These thoughts branch off a bit from the main line of the overall argumentation, which is why I will illuminate them in separate "interludes". There is also an accompanying website (<http://was-ist-schön.de>) to this book, where I have bundled further information on certain aspects.

I would like to mention that the ideas of Gregory Bateson (1904 – 1980) have contributed at least indirectly to this book. His name will not appear often, but in very different places. Hardly anyone has analyzed the different levels underlying mental processes as thoroughly as he has. At the end of his book *Mind and Nature*, Bateson had announced that he wanted to devote himself next to the connection between "the beautiful, the sacred and consciousness". However, he never got around to it. The book "Angels fear", published after his death by his daughter Mary Catherine, contains only a few fragments of thought on the subject of beauty, but no draft of a theory. Nevertheless, Bateson's systemic way of thinking was inspiring to me. Few people know that it was Bateson who established the now common prefix "meta" (as in meta-level, meta-analysis, meta-communication, etc.) to delineate different logical levels of reference. Bateson also propagated

thinking in patterns (and relationships in patterns), which is basically the core of systemic thinking and has also inspired the concept presented here.

This book does not presuppose any prior knowledge of the subject. You will not find a detailed philosophical or historical outline of aesthetics here. One problem is that almost all thinkers that have dealt with aesthetics and with processes of cognition use their own terminology. Thus it is unavoidable that some of the terms I use will have a slightly different meaning in the writings of philosopher X or scientist Y. Where it seems reasonable to me, I will try to prevent conceptual misunderstandings. If, however, I would only stay within the frame of reference of already introduced terminology, either contradictions would arise – or nothing really new.