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Animal Aesthetics

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Wolfgang Iser

I. Introductory remarks

1. Original idea for the essay^[1]

Why am I addressing the unusual topic of animal aesthetics? At our last meeting in Tokyo-Makuhari, I suggested a turn to transhuman aesthetics: a type of aesthetics that no longer follows the modern decree that everything is to be understood in departure from the human and by referring it back to the human.^[2] Instead, we ought to conceive of the human in a larger than human context, taking into account, for instance, our place in the cosmic and natural environment, or our primordial connectedness with the world, or the non-human layers of our existence.^[3]

In this spirit it is quite natural to turn to evolution to ask whether the aesthetic attitude might be not a uniquely human invention but one that already originated before man appeared on earth in the course of prehuman evolution, in the animal kingdom. Maybe human aesthetics developed from animal aesthetics.

I am not, of course, suggesting that sophisticated aesthetics as practiced by humans already exists among animals. There is certainly no Picasso in the animal kingdom, nor any sensibility for the flamboyant style or works by John Cage. Yet the aesthetic attitude as such - in however modest a form - might have *originated* in the animal kingdom. Drawing on this animal resource,^[4] human aesthetics might have evolved and, later on, when *cultural evolution* (so typical of humanity) emerged, had reached results very different from animal aesthetics.^[5]

With this idea in mind, I thought I would only have to go through the vast literature on evolutionary aesthetics in order to find the relevant materials and appropriate answers to my question. I was overly optimistic back then. In fact, reading the literature turned out to be very disappointing. Evolutionary aesthetics, as commonly pursued today, falls prey, in my opinion, to serious shortcomings.

2. Shortcomings of present evolutionary aesthetics

My objections are of two kinds: methodological and thematic.

a. Methodological reductionism

Darwin initiated the subject of evolutionary aesthetics. He did so by providing an account of animal aesthetics. The current champions of evolutionary aesthetics, however, mistrust and even demolish his concept. While Darwin had advocated the existence of a genuinely aesthetic sense in some animals, most contemporary evolutionists reduce the aesthetic to mere survival value. They try to unmask aesthetic appreciation as mere manifestation of fitness. In this (neo-Darwinian and especially sociobiological) perspective, there is simply no space for aesthetics proper.

b. Thematic restrictions

Furthermore, the contemporary representatives of evolutionary aesthetics address *human*, not animal aesthetics. What's even more surprising is that they do not even ask whether human aesthetic standards might, to some extent at least, be

continuations or remnants of aesthetic preferences in animals, perhaps among the animals closest to us.

For a truly evolutionary thinker, the latter would be the first and primary question. Present theory instead restricts itself to asking how human aesthetic standards originated in the course of *human* evolution. Thus evolutionary aesthetics is caught in the fetters of the anthropic prejudice, still sticking to the antiquated perspective that the human is to be understood in terms of the human alone, as if Darwin had not existed.[\[6\]](#)

Finally, even within this restricted perspective, evolutionary aestheticians focus on only a very limited selection among the full range of human aesthetic preferences:

* With respect to the human world, they only address preferences concerning bodily traits of the opposite sex (and predominantly the preferences of the male gaze on the female body).[\[7\]](#)

* With regard to the non-human environment, preferences for landscape types are discussed above all -- while, for example, preferences for plants or animals are not.[\[8\]](#)

* Within the range of landscapes, only our infamous preference for savannas is explained[\[9\]](#) and not, for instance, humans' aesthetic attraction to riverscapes or the sea, let alone to mountains.

In my view, these shortcomings are not offset by the more ambitious attempt to explain the origin of art.[\[10\]](#) As I'm largely at odds with the suggestions made, I will not even go into them in the following.

3. Aim of the essay

What I will do instead is focus on what, in my view, must be the principal question for evolutionary aesthetics: How did the aesthetic attitude originally arise in the course of evolution? How did the *aesthetic distinction* first come about - the appreciation of something which, though perhaps useful, is appreciated not for its utility but for its *aesthetic character*? Where do we first find a decoupling of aesthetic appreciation from a grasp of utility, an incipient appreciation of the beautiful for beauty's sake?

This is a very limited question. But I consider it to be the basic one. Once the ground of the aesthetic is revealed in this way, we can turn to the long sequence of further developments.

II. Some main points in Darwin's conception of animal aesthetics

1. Darwinian fundamentals: aesthetic distinction in a context of utility; coevolution of beauty and sense of beauty; continuity between animal and human aesthetics

The only author I found to be of help in clarifying my question was Charles Darwin.

(1) The idea that the "sense of beauty"[\[11\]](#) arises *in a context of utility* without yet being *per se a sense of utility or reducible to utility* lies at the heart of Darwin's account of animal aesthetics.

(2) Furthermore, Darwin did not simply ask where beauty first arises in the course of natural evolution, but where the *aesthetic correlation* of beauty and sense of beauty first

appears. He offered a theory of the *coevolution* of beautiful things on the one side and an aesthetic sense to which they appear beautiful on the other. According to Darwin, from a certain point in animal evolution onwards, bodily beauty and the sense of beauty *co-emerge*. This, for Darwin, constitutes the beginning of aesthetics.

(3) Finally, Darwin saw animal and human aesthetics as a continuum.

What I want to show through reconstructing the (in my opinion quite tenable) main points of Darwin's concept is that, first, contrary to what most of my fellow aestheticians think, the basic stock of the aesthetic *did* already arise in the animal kingdom. Human aesthetics draws on this stock -- though, of course, it then gives it an extensive development. And second, in contraposition to the mainstream in evolutionary aesthetics, I want to show that aesthetics *is* of an order of its own and cannot be reduced to straightforward indication of fitness. Hence my Darwinian explanation of animal *aesthetics proper* is also meant to defend a fortiori *human* aesthetics against sociobiological reductionism.

2. Pre-aesthetic beauty

a. Non-aesthetic beauty

For Darwin, not every kind of beauty is a product of aesthetic correlation and coevolution. Two incipient types of beauty emerged in evolution long before an aesthetic sense developed.

The first one is found in "low animals" like corals, sea-anemones, or some jelly-fish that "are ornamented with the most brilliant tints, or are shaded and striped in an elegant manner.." [12] Darwin explains this pre-aesthetic type of beauty as "the direct result either of the chemical nature or the minute structure of their tissues.." [13] Such beauty just happened to arise as a physiological effect, without the implication of any aesthetic function.[14] Only after the development of an aesthetic sense could such pre-aesthetic beauty be esteemed as beautiful. Originally it was not an aesthetic matter at all.

b. Proto-aesthetic beauty

A second, proto-aesthetic, type of beauty emerged with the conspicuous colors of flowers and fruits. These do serve a purpose: they attract the animals (insects or birds and beasts) that are necessary for pollination.[15] Here, for the first time, a *relational* structure is implied: the beautiful is *addressed* to someone, and it is linked to the context of *reproduction*.

This second type is like a bridge to the next level, where *aesthetic sense first arises*. Whereas the beauty of conspicuous colors was addressed to animals of a different species and required only color perception but not yet aesthetic sense, beauty in the proper sense arises in the intersexual relation within one species and is dependent on the simultaneous existence of an aesthetic sensibility. This proper sphere of the aesthetic is reached at advanced levels of sexual selection.

Darwin first recognizes the aesthetic effects of sexual selection in butterflies. He judges the manifest beauty of male butterflies' upper wing sides to be a result of female choice: having preferred the males with minute surpluses in beauty, the females have over a long time gradually reinforced the occurrence of such beauty in offspring and thus ultimately

'produced' the colors and designs manifest today.[16] Sexual selection is a strategy that makes future bodies more aesthetic and, by the same token, enhances aesthetic sense.

3. Some features of Darwin's theory of sexual selection

a. Sexual selection is a strategy complementary and not reducible to natural selection

Having established the concept of *natural selection* in his *Origin of Species* of 1859 (where he mentioned the concept of sexual selection only in passing[17]), Darwin felt an urge to complement it with the concept of *sexual selection*. "I probably attributed too much to the action of natural selection or the survival of the fittest," he wrote in 1871 in *The Descent of Man*,[18] and he devoted the second and quite voluminous part of this work to sexual selection.[19]

But sexual selection was, and remains, a controversial issue. In 1882, a few hours before his death, Darwin defended his view in a lecture to the Zoological Society: "Many naturalists," he remarked, "doubt, or deny, that female animals ever exert any choice, so as to select certain males in preference to others." Yet Darwin insisted: "after having carefully weighed, to the best of my ability, the various arguments which have been advanced against the principle of sexual selection, I remain firmly convinced of its truth.."[20]

It is easy to recognize one reason why Darwin's theory met with so much resistance in Victorian England. The claim that in most cases in the animal kingdom it is the females who choose their sexual partners was offensive to dominant social ideology and sexist prejudice.[21] So too was the thesis connected with this claim that the females possess the highest intellectual capabilities and were originally the producers and sole possessors of taste.[22]

b. The primary arena of sexual selection: male competition for the female

The difference between natural and sexual selection can easily be stated: natural selection concerns the fitness of an individual at every moment of its life with respect to the environment; sexual selection concerns only the fitness of the males with respect to their competition for the females during females' fertile periods.[23] Hence "sexual selection" is "less rigorous than natural selection":[24] while in the "struggle for existence" the loser will die, in the "sexual struggle" he will only have "few or no offspring.."[25] So the framework for sexual selection is reproduction, and its primary arena is male competition for access to females.[26]

c. Power wins

The simplest case concerning the male competition is that the strongest male wins and monopolizes the females. Here all that's at stake - power - is a criterion of natural selection.[27]

d. Growing weapons: possible divergence between the demands of sexual and natural selection

"But in many cases," Darwin observes, "victory depends not so much on general vigor, as on having special weapons." [28] Think, for instance, of the deer's antlers. Darwin considers such weapons a result of sexual selection. Their production started from natural precepts (horns being useful against other species), but since their further development provided an additional advantage in rivalry and hence in procreation,[29]

these weapons became more and more developed -- for purposes of sexual, not natural selection.[30]

But now consider the ambivalent role of these enhancements. They are no doubt advantageous in the sexual struggle, but the bigger they get the more they hinder the original struggle for life. Large antlers are a hindrance when roaming the woods. So sexual selection and natural selection come into conflict. Sexual selection, though working amidst natural selection and initially, for the rivalry between the males, complying with a criterion of natural selection (power), tends to take a route of its own, one not necessarily coinciding with the demands of natural selection.[31] Male ornaments designed for success in the sexual struggle are often counterproductive in the struggle for life.[32]

Hence a certain balance between sexual and natural demands must be upheld. The demands of the struggle for life cannot not simply be ignored by the special enhancements for the sexual struggle -- this would end in extinction. Natural selection allows for some but not too much caprice.

Yet sexual selection, though subject to the general conditions of natural selection, exploits its liberty and takes a route of its own. This is why the specific enhancements of sexual selection cannot be explained simply in terms of natural selection -- only their limits can. This is also why Darwin, who saw both the embedding of sexual selection within natural selection and the possibility of divergence between the two, insisted on acknowledging sexual selection as a mechanism on its own.

This is of course not to say that sexual selection doesn't turn on utility. It certainly does. But it yields *a second range of utility*. It develops things that are useful for the sexual struggle without being useful -- in fact are often even disadvantageous[33] -- in the struggle for life. So sexual selection effects a first distancing from the requirements of natural fitness alone.

e. Charming the female

After decision by mere power and the development of special weapons, a third mode of male competition arises when it is not simply the male who wins the fight against his rivals by such means that obtains access to the females but when, in addition, the females exercise choice. This is a new and highly consequential phenomenon. It is here that the *proper sphere of animal aesthetics* begins.

First: The axis of the sexual struggle shifts. It no longer concerns just the fight between the males "in order to drive away or kill their rivals.."[34] Rather, male competition now turns into courtship and is directly addressed to the females, "in order to excite or charm" them.[35]

Second: The means of charming the females are specifically aesthetic ones. The long list of possible male charms includes odors, songs, love-dances, antics and, above all, "ornaments of many kinds": "the most brilliant tints, combs and wattles, beautiful plumes, elongated feathers, top-knots, and so forth.."[36]

Third: It is here that ornamental beauty as such arises. Though many of the male ornaments may have first developed as means of utility,[37] later on they have been "modified for the sake of ornament,"[38] losing their original function and becoming "merely ornamental.."[39]

Fourth: The females exercise choice. While before, when the male struggle alone decided, the females remained "passive,"[40] they now "and they select "the more agreeable partners." [41] They do so through their "taste for the beautiful,"[42] through their "sense of beauty." [43] Accordingly, the aesthetic sides of the males become decisive: "the females are most excited by, or prefer pairing with, the more ornamented males, or those which are the best songsters, or play the best antics." [44]

So at this level the aesthetic correlation is fully reached: there is male beauty on the one side that has developed for the purpose of being appreciated by the corresponding female sense of beauty on the other side.

This high level is typical of birds, which Darwin famously called "the most aesthetic of all animals." [45] I will now turn to some questions of detail.

f. Two divergent orders of utility: the advantage of Darwin's theory over standard evolutionary as well as bourgeois aesthetics

Is aesthetic appreciation, then, the appreciation of something useful? Yes and no. The male ornaments *are* useful in terms of charming and winning the female. But they are, in many cases, either not useful or even harmful in the struggle for life (and even with respect to the primary arena of sexual selection, to male competition). [46] Darwin is eager to emphasize both: the sexual usefulness *and* the natural uselessness of beauty.

It is one of his theory's merits that Darwin is able to distinguish two kinds of utility, and so is forced neither to reduce the appreciation of the beautiful to mere awareness of natural utility (as many contemporary evolutionary theorists do), [47] nor to declare the beautiful simply purposeless (as bourgeois aesthetics did). [48] Darwin's key point is that aesthetic utility is distinct -- and sets itself off -- from natural utility. Aesthetic elements, though purposeless in the order of natural selection, are purposeful in the order of sexual selection. This is Darwin's version of "purposiveness without purpose."

Yet, as sexual selection is not simply decoupled from natural selection, males as well as females must evolve a balance between the demands stemming from both orders. If the ornamental caprices of sexual selection went too far, their bearers would soon die out. And the females, when making their choice, do indeed deploy a mixed calculation. On the one hand they "prefer pairing with the more ornamented males," but on the other hand they also tend to "prefer the more vigorous and lively males." [49] So they "select those which are vigorous and well armed, and in other respects the most attractive." [50]

g. Constitution of the sense of beauty in females: coevolution of male beauty and the female sense of beauty

Of course, the development of male beauty makes sense only if the females are receptive to it. The females must go for beauty, must possess a sense of beauty. The relationship between male beauty and the female sense of beauty is in fact grounded even deeper than in the necessity of aesthetic correlation. Beauty and the sense of beauty *originated* together and reinforced each other -- they developed through *coevolution*. At the beginning, minute elements of male beauty and an incipient female sense of beauty had the effect that the more beautiful males were chosen by the females; as a result both the disposition for beauty and the sense of beauty

gradually acquired greater representation in the offspring; and thus finally beautiful males and tasteful females became the standard of the species. In this way, beauty and the sense of beauty have coevolved. Their relationship is not only mutual in actual practice but also genealogical.[51]

III. The central phenomenon: female delight in the beautiful as such

But do the females really possess a sense of beauty? According to Darwin, this is "impossible to doubt." [52] One of his main arguments (which he repeats over and over) is that otherwise the males' beautiful ornaments and all the great labour and anxiety the males exhibit in displaying their charms before the females during courtship would be completely in vain. [53] How can Darwin make his claim intelligible that the females do indeed appreciate the beautiful for being beautiful?

1. Courtship: aesthetic performance and choice

Let's recall the ever narrower circles that finally converge on the females' preference for the more beautiful males. The widest context was the struggle for life; within this, sexuality represented a particular sphere in which the male competition for access to females formed the beginning. Finally, however, a specific alteration of the sexual struggle took place; it concerned its axis, means and structure: From now on the competition was directly addressed to the females, beautiful male ornaments became the main means of advertisement, and the females made a choice.

The male performance is quite impressive and elaborate. Male birds take "much pains in erecting, spreading, and vibrating their beautiful plumes before the females," [54] they perform "the strangest antics," [55] and in so doing, Darwin says, "consciously exert their [...] powers." [56] There is no doubt about the female exercise of choice either. [57] It results from appreciating the beautiful ornaments and being excited by their display. Female appreciation of male beauty is the core phenomenon in the entire chain of events; it leads from male courtship to female choice and finally to pairing. So its precise understanding is crucial to Darwin's conception of animal aesthetics.

2. The females make an aesthetic judgment; this determines their choice

When the females go for the more beautiful males, they do so based on an aesthetic judgment made due to their "taste for the beautiful." - "Aesthetic judgment" is my term, not Darwin's; but I am confident it grasps and faithfully represents his idea.

Aesthetic judgment is essentially a judgment based on *pleasure* -- not on a concept or on objective analysis. [58] The *appearance as such* must be experienced as *pleasurable*, without any need for knowledge of why this is so. [59] When the peahen is excited by the peacock's display of his beautiful plumes, she takes delight in the beauty of his ornament and performance and nothing else. She performs an *aesthetic* judgment.

This judgment by itself leads to choice. Aesthetic judgment is inherently evaluative and comparative: it assesses the intensity of pleasure. Therefore, when several competitors display their charms, no additional calculation and decisionmaking is needed. The female will go for the most beautiful male, the one who stimulated the most pleasure.

3. The females do indeed appreciate the beautiful as such

The crucial and controversial question is whether the females really appreciate the beautiful for being beautiful or for something else. Darwin was convinced that they appreciate the beautiful as such. Contemporary theory, however, proposes that they don't, but rather take the beautiful as a signal of fitness.

I think that Darwin is right in claiming that the females do appreciate exactly those traits of the male appearance that make up its beauty. I will try to make clear that the perception and appreciation of the beautiful cannot be bypassed or reduced to awareness of fitness.[\[60\]](#)

Observation leaves us in no doubt that the female does go for the beautiful. But does she do so because of its beauty or for other reasons? This is the critical question.[\[61\]](#) It is unfortunate that no experiments have been done which would decide the question. There are many sophisticated experiments concerning aspects of animal cognition,[\[62\]](#) but (as far as I know) none addressing the core question of aesthetic perception.[\[63\]](#)

Yet there is strong evidence that the females do perceive the beautiful as such. With peacocks, for instance, a slight variation of the beautiful ornaments can already reduce and even ruin the chances of mating.[\[64\]](#) So there is an extremely close correlation between the female preference and the elements constitutive for beauty, which more than suggests that precisely the elements constitutive of beauty are perceived and esteemed. If, as sociobiologists assume, they were to be grasped as indications of something else (fitness), it would be extremely unlikely that precisely the minor modifications which lead to failure with respect to beauty (and beauty is a precarious phenomenon) should cause equally intense failure in the different order of fitness. Thus, according to all evidence, it is indeed the beauty characteristics that are perceived and positively reacted to.[\[65\]](#)

4. Why does beauty do the job? The neo-Darwinian explanation

This is not to say that no further questions concerning details of the female appreciation of beauty would remain. One of the questions is: *Why* is beauty capable of attracting and exciting the females? What is it that actually makes the females go for the beautiful and base their mating choices on an aesthetic judgment?[\[66\]](#)

Darwin himself was puzzled by the question. Already in *The Origin of Species* he wrote: "How the sense of beauty in its simplest form - that is, the reception of a peculiar kind of pleasure from certain colours, forms, and sounds - was first developed in the mind of man and of the lower animals, is a very obscure object. The same sort of difficulty is presented, if we enquire how it is that certain flavours and odours give pleasure, and others displeasure."[\[67\]](#) In *The Descent of Man* of 1871 he returned to the riddle[\[68\]](#) and extended it even to bodily sensations: "No doubt the perceptive powers of man and the lower animals are so constituted that brilliant colours and certain forms [...] give pleasure and are called beautiful; but why this should be so, we know no more than why certain bodily sensations are agreeable and others disagreeable."[\[69\]](#)

5. How neo-Darwinism provides the missing piece

So Darwin had no idea as to why beauty gives pleasure -- nor likewise why some bodily sensations are agreeable and others disagreeable. This is where contemporary neo-Darwinian and sociobiologist explanation comes in. It tries to fill the gap between phenomenon and reason[70] and to finally say why it is that beauty gives pleasure. The explanation is that beauty is a signal for fitness. The female is (for the benefit of her offspring) interested in the reproductive fitness ("good genes") of the male; she takes male beauty as a signal for this; that is why male beauty stimulates interest and pleasure on the female side and why the females select the beautiful males. They are guided by beauty's property as a fitness indicator.

The fitness indicator theory (initiated by Ronald A. Fisher already in 1930) comes in two quite different variants which it is important to distinguish. One version does not question the fact that the female perceives and appreciates the beautiful. It simply adds that the ultimate reason for this is that beauty is an indicator of (a signal for) fitness. This version (advocated by Miller, for instance[71]) is less common. The widespread version however makes a stronger claim, one that precisely with regard to the aesthetic issue is different. According to it, the females in no way perceive beauty as beauty; instead what they have before their eyes is an indicator of fitness. When gazing at beauty they have no regard whatever for its beauty character, but for an exclusive X-ray vision of the fitness character signalled by beauty. They are direct decoders of the beautiful appearance.[72] What to us looks like perception of beauty and an aesthetic judgement is in truth nothing but the decoding of fitness.[73] Whereas aesthetics is a real phenomenon for the first version, for the second it is just appearance.[74]

I consider the first version of the indicator theory worth consideration, but the second (the strictly sociobiological one), however, untenable. According to the first version, two levels are to be distinguished: direct (phenomenal) and indirect (hidden). Directly (and, so to speak, consciously) the female is excited by beauty and therefore goes for it. But the indirect (and unconscious) reason for this is beauty's property of being indicative of fitness. Or, to rephrase the point in terms of proximate and ultimate causes: the male beauty and the female excitement by beauty are the proximate cause of the females' selection of beautiful males, while beauty's character of being a signal for fitness is the ultimate cause of the occurrence. The first version operates with a clear distinction between the proximate level of recognizing beauty and the ultimate level of appreciating it as intrinsically (but unknowingly) being a fitness indicator. The second version, however, eliminates the aesthetic level and only keeps the level of fitness recognition. It takes apparently aesthetic perception and appreciation to be *directly* and *solely* determined -- even to be completely replaced -- by the perception of fitness value. It's the latter and nothing else that occurs.[75]

Why can this second view not be correct? Whereas the first version assumes only *some* link between beauty and fitness, the second one propounds a direct link, in fact strict *isomorphism* between beauty and fitness. I've already made clear why this presumption is flawed. The females undoubtedly go for the beautiful, and they do so by going for precisely those elements that are constitutive for the beauty of beautiful appearances. If this occurrence were really to be understood in terms of going not for beauty but for fitness, then the order of beauty and fitness would have to be absolutely synchronized

(like in Leibniz's metaphysical phantasy of a "pre-stabilized harmony" between the physical and the mental series of events). Only then could the apparent efficacy of beauty be taken, without further ado, to be the efficacy of fitness.

But such strict isomorphism doesn't appear to exist.^[76] Slight alterations in the aesthetic configuration, I said before, can damage aesthetic perfection (as beauty is a highly precarious phenomenon) and have the drastic effect of ruining mating chances. (Which I took as evidence that the females indeed choose on aesthetic grounds.) Now it has never been shown that such minor aesthetic modifications (but with drastic consequences) are in fact coupled with an equally drastic decrease in reproductive fitness. Evolutionary aestheticians always just take for granted that fitness is the proper currency of beauty. Hence they think they know for sure why a minimal aesthetic change can have drastic consequences: it must be linked with a drastic difference in fitness. But with this assumption they violate their own logic in cases like this: suddenly isomorphism is no longer supposed to apply after all; rather the *minimal* aesthetic differences are supposed to be able to correlate with a *maximal* fitness difference. Here the approach abrogates itself.

What one wants to explain away in cases like this is a typical aspect of the logic proper to the aesthetic: that slight changes in aesthetic felicity can have dramatic consequences. In a fitness perspective, however, this can only be rendered by assuming that a minimal change in the aesthetic configuration is coupled with a maximal change in the fitness characteristics. This, however, explodes the logic of isomorphism, which on the other hand is to represent the indispensable general basis for the reduction of beauty to fitness. This deliberation teaches us two things: that the reductionist version of the fitness indicator theory (its second version) is untenable;^[77] and that one cannot ignore the logic proper to the aesthetic with impunity.

6. Acknowledging aesthetic appreciation in animals is indispensable, even when assuming a hidden logic of fitness

The point I am emphasizing against sociobiological attempts at explanation -- whatever else their benefits or shortcomings may be^[78] -- is this: Even if one assumes that beauty means fitness in a hidden way and that this is ultimately the reason why the beautiful is esteemed, in no circumstances can one get round the fact that what the female appreciates in the first place is the beautiful as such. The second version fails precisely by not systematically taking account of this aesthetic occurrence. Whatever the hidden meaning of beauty may be, the beautiful is first perceived and estimated due to its characteristics of being beautiful. It is precisely these aesthetic characteristics that produce the attraction. They are the objects of choice and what finally cause pairing. So not even reference to a hidden logic of fitness can really bypass aesthetic appreciation of the beautiful. The female must like the *beautiful* male and go for him in order to get the *fit* one. The proximate goal is beauty, and the ultimate goal would not be reached if aesthetic appreciation were not in place.

So any attempt at bypassing or dismissing the aesthetic phenomenon or at simply reducing it to something else is bound to fail. The aesthetic phenomenon remains indispensable. Beauty may be a means to attaining non-aesthetic ends. But these are reached only through the perception and estimation of the beauty of the beautiful. The dual perspective of proximate occurrence and ultimate goal

(typical of neo-Darwinism) may be correct, but the reductionist elimination of the former (as intended by sociobiology) is not.

While Darwin had insisted on the specificity of sexual selection and as its highest phenomenon aesthetic appreciation, Neo-Darwinists tend to reduce it to the laws of natural selection.^[79] This is how today, following its revival, Darwin's theory of sexual selection is again being demolished. Darwin considered the aesthetic attitude an advanced product of evolution which reaches new heights in human evolution. Neo-Darwinists try to force it back into the mere logic of natural fitness. Against this line of thinking, I have tried to show that the perception and appreciation of beauty is indispensable even for the fitness logic to work.^[80]

My defense of the irreducibility of the aesthetic already in animals is, in the first place, meant as a defense of the aesthetic phenomenon against positions that believe they can do away with it. But the point has an even wider reach. If animal aesthetics is irreducible, then human cultural production is all the more so. "Greedy reductionism"(Dennett)s misplaced on all accounts. It actually misrepresents the very structure of evolutionary thinking: the dual structure of continuity and emergence. The first point is, of course, always that higher stages develop from lower ones and cannot be understood without taking these into account. But there is a second point: The properties of the lower stages do not in all cases provide *sufficient* means to understand what's going on at the higher level. Evolutionary thinking not only emphasizes continuity and gradation, but also brings out the importance of *emergence*. Higher stages can develop a logic that includes factors irreducible to those already existing at lower stages. This holds, for instance, already for the evolution of the brain (initiated around 400 million years ago); likewise for the development of aesthetic sense in animals, and, of course, for the peculiarities of human cultural evolution. Hence defending the irreducibility of animal aesthetics against simplistic versions of sociobiology is also meant to defend, *a fortiori*, the irreducibility of higher-level cultural stages against eliminative reductionism.

7. Where does the energy for the aesthetic pleasure come from?

a. Aesthetic pleasure is based on sexual desire

Another question is still in need of clarification. No doubt the perception of male beauty generates excitement and pleasure on the side of the female. But what is the real source of energy for this pleasure? Is its original source the perception of the beautiful? In standard *human* aesthetics the pleasure is considered to originate uniquely through perception of the beautiful. In the realm of *animal* aesthetics, however, things seem to be different. The fundamental energy source of the pleasure in beauty, it appears, is sexual desire.

Delight in beauty obviously arises only in the context of sexual desire. Only when this is active, will the beautiful be able to give rise to pleasure.^[81] Sexual drive is the prime condition and basis of the occurrence, and beauty is a means of helping it to its goal. When the female perceives a beautiful male, her desire is aroused. Beauty is a means of raising sexual desire into actual arousal.

b. Relative and cooperative independence of the aesthetic

It nevertheless remains true that beauty has this effect in virtue of its being beautiful. The aesthetic factor remains

irreplaceable in a *functional* respect, though dependent in an energetic respect. The specificity of the aesthetic that Darwin constantly insisted upon is not to be neglected. Between sexual desire and the perception of beauty there is a compound of distinctiveness, cooperation, and dependency. While the efficacy of beauty depends on desire, the latter can conversely reach its target only through the appreciation of beauty. And neither can substitute for the other. Beauty without sexual drive would not lead to union, and this drive would not find fulfillment without the perception of beauty.

Where aesthetics has originated as part of the game, the sexual drive has, so to speak, erected a higher story in the perceptive faculty which serves to register not just any perceptual property but to grasp and judge precisely an aesthetic valency -- beauty. When the female picks a partner, her choice is determined by taste, though her choice only occurs and her taste only works in the context of desire. That the female takes a partner at all is *sexually* determined, but that she chooses precisely *this partner is aesthetically* determined.[82]

c. The apparently rudimentary state of animal aesthetics

Animal aesthetics seems limited to the operation of sexual desire. There are apparently no cases where pleasure in beauty is taken independently of this condition. Animal aesthetics remains, in all likeliness, dependent on the energy provided by the sexual drive.[83] So in animals the pleasure taken in beauty seems to lack what is characteristic of the human pleasure in beauty: being derived from the perception of the beautiful alone and from no other source (this is at least assumed by standard aesthetics). Hence the claim that animals appreciate the beautiful for beauty's sake would go too far and, in fact, be untenable. Animal pleasure in beauty is, viewed from the traditional point of view, not aesthetic pleasure proper. Rather, it is sexual pleasure occasioned by perceiving beauty.

So in the animal kingdom aesthetic pleasure and judgment attain only a first and rudimentary stage. They remain bound to the energy of the sexual drive, without yet reaching a level where they are nourished by aesthetic attraction in the proper sense. The aesthetic attitude has not yet become free, independent, or purely aesthetic (autonomous) in the strong sense.[84] So, even though some animals perceive and appreciate the beautiful as such, their mode of appreciation and judgment remains comparatively low: sex-driven, not originally beauty-driven.

d. A possible flaw in the degradation of animal aesthetics

But the problem with an assessment like this is obvious. One is assuming that the human interest in the aesthetic is exclusively nourished by genuinely aesthetic sources, that it is of genuinely aesthetic origin. Only on this premise is the difference to animal aesthetic then considerable. But can one be so sure of the genuinely aesthetic origin of human aesthetics? Bourgeois aesthetic theory attempted to make such a view plausible. But is it tenable? And this despite the constantly raised objections that our aesthetic is at least *also* nourished by sources other than purely aesthetic ones?[85] Freud, for instance, thought that all our cultural -- hence also all our aesthetic -- endeavours represent a sublimation of the sexual drive.[86] With this he at least provided an answer to the question as to where our aesthetic interest comes from. By contrast, the answer of classical aesthetics (the reverse side of

its assurance that aesthetics is not nourished by sources other than aesthetic ones) was: "Je ne sais quoi." In this way one wanted to secure the independence and irreducibility of the aesthetic against all supposed extra-aesthetic motives. But was this statement really sufficient? In any case, it became an incentive to search for hidden sources of aesthetic estimation, which opened up a rich area of work for psychologists and sociologists.

This is not the place to decide that question. But one thing is to be noted: If it is not clear with respect to human aesthetics what its sources are; if these too might at least in part be sexual in nature (according to Freud sublimation is precisely the one great motor of human cultural development altogether), then one has no right to degrade animal aesthetics or even to exclude it from the realm of aesthetic consideration by pointing to its sexual grounding.

8. Intermediate summary: origin of the aesthetic in the animal kingdom

To sum this up: Darwin, I think, has provided a valuable theory for the animal origin of aesthetics. His account comprises firstly the *aesthetic distinction*: the appreciation of something not for its vital utility but for its aesthetic character; secondly the *coevolution* of aesthetic elements and aesthetic sense; and finally the exercise (however sexually bound) of *aesthetic judgment*. These elements, I think, do indeed constitute the basic stock of the aesthetic. I will later take up the question of further limitations of animal aesthetics and of how a route can lead from it to human aesthetics.

IV. Turn to neurology

Darwin finally addressed two further questions: (1) How is it to be explained that animals take pleasure or displeasure at something altogether, beginning with simple bodily sensations through to aesthetic pleasure? (2) How is the congruence between the aesthetic estimations of animals and those of humans (Darwin was convinced that there is such a congruence) to be explained?

Darwin answered both questions with recourse to the nervous system and its evolution. (The turn to neurology by evolutionary theory and evolutionary aesthetics is not first a recent one but is a move already made by Darwin.)

1. The nervous system and the sensation of pleasure (of whatever kind)

I have already mentioned that Darwin felt puzzled by the question of why beauty gives pleasure to "the perceptive powers of man and the lower animals" and "why certain bodily sensations are agreeable and others disagreeable."^[87] It is also noticeable that in the *Descent*, Darwin repeatedly linked having a "sense of beauty" with high emotional and intellectual capacities. He stated that animals with "appreciation of the beautiful in sound, colour or form" must also be capable of "love," "jealousy" and "the exertion of a choice."^[88]

Darwin ultimately gave the same answer as an explanation for the diverse sensations of pleasure as for the emotional and intellectual capacities required by aesthetic sense: "there must be some fundamental cause in the constitution of the nervous system."^[89]

All "these powers of the mind," Darwin says, "manifestly depend on the development of the cerebral system."^[90] So,

while Neo-Darwinians go for an overall fitness explanation, Darwin went for an overall neurological explanation. The various kinds of pleasure, he thought, are made possible by the cerebral system, and high emotional and intellectual as well as aesthetic capacities depend on its high level of development.

Darwin, of course, did not yet know much about the nervous system,^[91] but interestingly he was aware that aesthetic sense does not arise from a specifically aesthetic capacity alone but rather originates in a more complex network, one also including emotional and intellectual components. There is no 'autonomous' origin of the aesthetic -- neither for Darwin nor for contemporary science.

2. Continuity and congruence

Having established the common evolution of emotional, intellectual, and aesthetic capacities due to the development of the cerebral system, Darwin set out to explain the continuity and congruence between animal and human aesthetic appreciation.^[92]

For Darwin, it was an obvious fact that there is such congruence:^[93] "the same colours and the same sounds are admired by us and by many of the lower animals";^[94] "birds [...] have nearly the same taste for the beautiful as we have";^[95] "the high standard of taste" in animals "generally coincides with our own standard."^[96]

Darwin found the explanation in the continuous evolution of the cerebral system: "Everyone who admits the principle of evolution [...] should reflect that in each member of the vertebrate series the nerve-cells of the brain are the direct offshoots of those possessed by the common progenitor of the whole group. It thus becomes intelligible that the brain and mental faculties should be capable under similar conditions of nearly the same course of development, and consequently of performing nearly the same functions."^[97] So Darwin explained the congruence in terms of the common line of genealogy and the continuity of evolution.

Exceptions to the congruence between human and animal aesthetic appreciation are no problem. They are indebted to cultural evolution: "Obviously no animal would be capable of admiring such scenes as the heavens at night, a beautiful landscape, or refined music [...]."^[98] But these "high tastes" depend "on culture and complex associations."^[99] Not even our early ancestors were capable of them, nor are "barbarians or [...] uneducated persons" today.^[100]

Considering all this, Darwin could very well be confident of having not only explained the origin of the aesthetic and having given a valuable account of animal aesthetics, but also of having revealed the grounds of human aesthetics.^[101]

V. Further perspectives

Let me finally turn to some considerations leading beyond Darwin. They concern limits of animal aesthetics, considerations on the transition to human aesthetics, and suggestions for further inquiry.

1. Animal aesthetics: bound within the limits of the species

One thing is puzzling in Darwin's account of animal aesthetics. Of the female Argus pheasant, for instance, he says that she

possesses an "almost human degree of taste."^[102] But how far does this taste reach? Only to the beauty of the male Argus pheasant. Despite being so highly developed, her taste is extremely limited in scope. It is restricted to perceiving the beauty of the other sex within the same species and in no way reaches beyond this narrow perspective.

Isn't that strange? Wouldn't we demand, in order for talk of "aesthetic sense" to be justified, that this sense is also open to a broader range of beauty, to instances of beauty beyond the limits of the species? And wouldn't Darwin's reference to the continuous development of the cerebral system across many species lead us to expect that not only intraspecific but also interspecific beauty is perceived?

Maybe not. Maybe Darwin's conception of this first stage of the aesthetic and of the limitations existing at this first level is sound. The context, we saw, is sexual: competition for mating chances. Viewed in this context, it suffices fully that male beauty and the female sense of beauty address only the opposite sex. Cross-species capacities to charm and appreciate would be of no use. The sexual context, it seems, imposes strong and reasonable limits on this first appearance of the correlation of beauty and a sense of beauty.

2. Another, cognitive type of aesthetics in the animal kingdom

If we follow Darwin, animal aesthetics seems to arise exclusively in the context of sexuality and not, for instance, in that of cognition. According to recent research, however, some aesthetic preferences in animals, for instance the preference for regular shapes, refer rather to order, and hence to cognitive, not sexual interest. The context of their origin is environmental, and the preferences are concerned with typical properties of the animals' habitat.^[103] So there are reasons for broadening the picture^[104] and to look also for further advancements of the aesthetic -- in animals and beyond.

3. Extension and refinement

With the help of Darwin, I have been investigating the origin of the aesthetic attitude in the animal kingdom. The basic stock of the aesthetic, we have seen, already exists with highly developed animals. But we have also found two strong limits of animal aesthetics. The first concerned the fact that the pleasure taken in beauty does not originate solely through the perception of the beautiful as such, but draws on the energy provided by the sexual drive. The second limit regarded the restricted range of things beautiful which stimulate aesthetic pleasure in animals. This gives rise to further questions: How can subsequent stages of the aesthetic be developed by drawing on the stock of animal aesthetics? How can the limits of animal aesthetics be overcome? How, finally, is the route from animal aesthetics to human aesthetics to be imagined?

Darwin's concept is subtle and allows for further developments not only through gradation, but also through a variety of transfers. Some were already instrumental in the course of animal aesthetics.^[105] Further steps can be taken. A first advancement is obviously represented by the occurrence of an aesthetic sense (in species where the females standardly possess it) in males too. Bower-birds are an example of such transfer within the animal kingdom.^[106] The males build beautifully arranged and decorated bowers for the sole purpose of mating. In order to be able to do this, they must possess aesthetic sense (as do the females who choose their partner by

evaluating the bowers).^[107] With bower-birds even the production of aesthetic artifacts seems to originate within the animal kingdom. Whereas beauty is usually invested in the male body, the male bower-birds are unimposing. They have, as it were, externalized the task of beauty-building, have transferred the investment in beauty from their body to artifacts.^[108] Both peculiarities -- the males possessing taste and creating artworks -- of course coincide.

There are two directions of further development. One is extension: the opening of the aesthetic sense to perceiving beauty beyond the species limit -- in other animals -- and also down to the first order of beauty, that created accidentally by chemical processes. This will require some distancing of the aesthetic sense from its sexual bind. Another direction is refinement. This route was obviously already taken among animals and can be pursued further. Once the aesthetic attitude has been reached to begin with, it can develop into higher stages and more sophisticated configurations. Both directions, extension and refinement, are certainly characteristic of human aesthetics. This one might well have developed from an animal outset.

How could these subsequent directions be embarked on in departure from animal origins?^[109] We've seen that the aesthetic attitude began as a useful one: male beauty increased the chances of a union, and female taste decided on this. Given this primary constellation, it is easy to see how a separation of aesthetic estimation from its original restrictions could occur. In its structure (though not yet in its function) the animal aesthetic sense is already a type of its own. It already directly addresses the beautiful attributes. Already in animals, the aesthetic sense is a subtle one. The females do not just go for any qualities but for highly distinctive aesthetic qualities. Their aesthetic sense is like that of a gourmet, not a gourmand. It's just that it still serves the sexual interest, which has, so to speak, set up this detour via beauty.

The liberation of aesthetic estimation from this strict sexual bind is dependent on the development of other capacities connected with aesthetic appreciation. Just consider the even simpler case where an animal familiar with good-tasting food sets up a store of it without actually being hungry. With the development of a sense of time and of memory, the possible distance between the awareness of agreeability and immediate desire grows. On a higher level, aesthetic estimation can detach itself in a similar way from the direct bind to desire. Here, too, a memory of previous experience and of its appreciation can play a role in forming current aesthetic attitudes. For example, both the display of beauty and the exercise of aesthetic sense can become ritualized and henceforth be practised in situations that are no longer directly situations of desire. In this way, a first decoupling can come about and the route be cleared to ever higher types. As the aesthetic sense as such already represents a special refinement of the general faculty of experiencing pleasure, it can continue to ascend to ever higher stages within its own sphere, with ever greater distance from sexual desire and more and more refinement taking place.

4. Pleasure: an elementary condition for the aesthetic

One last consideration: I have already pointed out that aesthetic judgment is tinged with pleasure. So being capable of pleasure is as elementary a condition for the aesthetic as are emotional and intellectual capacities. Pleasure in the most basic sense originates with sensation and so with the

elementary property of animals; animals are by definition sentient beings, and being sentient implies the experiencing of pleasure and displeasure.

Only beings that are capable of pleasure can, at a higher level, also be capable of aesthetic pleasure. In this sense, hedonism is the basis for aesthetics. This consideration opens up a perspective and task for evolutionary aesthetics that goes beyond Darwin's approach. I recommend looking into the primary constitution and the stages in the development of pleasure which finally lead to the constitution of aesthetic pleasure. I am suggesting a kind of pre-aesthetic analysis of the evolution of pleasure, confident that this might give us a better, genealogical understanding of the constitution of the aesthetic.^[110] But this is a topic for another essay.

Endnotes

[1] Paper given at the XVIth International Congress of Aesthetics, "Changes in Aesthetics," Rio de Janeiro, July 18-23, 2004. I am indebted to Andrew Inkpin for help in improving my English.

[2] This prototypical formula of modern thinking was coined by Diderot: "L'homme est le term unique d'où il faut partir, & auquel il faut tout ramener" ("Man is the unique concept from which we must start and to which we must refer everything back") (Diderot, "Encyclopédie" [1755], 213).

[3] Cf. Welsch, "Art Transcending the Human Pale - Towards a Transhuman Stance" (2001).

[4] In the realms of emotion, behavior and cognition it is well documented that humans draw on a large stock of capacities and attitudes already achieved in animals. Shouldn't something similar be the case with aesthetics?

[5] Conversely, there is also reason to warn of the methodological error of basing the question as to whether there is an aesthetics with animals on the specifics of highly-developed human aesthetics as binding criteria. One can then spare oneself the investigation straight away - the answer is of course 'no.' But precisely the premise that aesthetics must be either as it is with us humans or nonexistent is false. It is often introduced with the conscious goal of excluding the possibility of an animal aesthetics. Against this one should reckon with gradualism: our highly sophisticated aesthetics could have developed from modest beginnings. This would apply even if these beginnings were not of animal, but already human nature. One would certainly not want to make postmodern irony the measure of stone-age cave paintings either. In the domain of aesthetics, too, as in the domains of behavior and cognition, it is advisable to look out for preparations and outsets in the animal kingdom.

[6] One *knows*, of course, a lot about Darwin. It's just that one does not actually put his perspective into *practice*. Evolutionary aesthetics is tailored more in a preDarwinian manner, as if still buying into the old (metaphysical) assumption of an "infinite difference between humans and animals" as stated, for instance, by Kant or Hegel. Kant: "The step from the animal to the human [...] is [...] infinite" (Kant, "Menschenkunde" [1781/82], 1033 f.); Hegel: "It is the infinite difference which [...] separates man from animals" (Hegel, *Aesthetics. Lectures on Fine Art* [1817-29], 80).

[7] Cf. Etcoff, *Survival of the Prettiest: The Science of Beauty* (1999); Thornhill and Gangestad, "Facial attractiveness"

(1999); Grammer, Fink, Møller, and Thornhill, "Darwinian aesthetics: sexual selection and the biology of beauty" (2003).
- Furthermore, even in this narrow perspective one predominantly restricts oneself to anthropometric data (facial and bodily proportions, symmetry) and, with very few exceptions, does not contemplate, for example, aesthetic evaluation of the way of walking, or the type of movement in general (adroitness, grace etc.).

[8] Or if so, the theories brought forward are obviously untenable. According to Thornhill, for instance, the assessment of beauty is determined by "the perception of ancestral cues to available animal food and safety from predators in one's environment" (Thornhill, "Darwinian Aesthetics" [1998], 562). If this were true we ought to rate pigs as very beautiful and big cats as ugly - but we obviously do otherwise.

[9] Cf. Orians and Heerwagen, "Evolved Responses to Landscapes" (1992); Kaplan, "Environmental preference in a knowledge-seeking, knowledge-using organism" (1992); Ulrich, "Biophilia, Biophobia and Natural Landscapes" (1993); Heerwagen and Orians, "Humans, Habitat, and Aesthetics" (1993).

[10] Cf. Dissanayake, *Homo Aestheticus* (1997); "'Making Special': An Undescribed Human Universal and the Core of a Behavior of Art" (1999); *Art and Intimacy: How the Arts Began* (2000). Aiken, *The Biological Origins of Art* (1998). Miller, "Aesthetic fitness: How sexual selection shaped artistic virtuosity as a fitness indicator and aesthetic preferences as mate choice criteria" (2001).

[11] Darwin, *The Descent of Man, and Selection in Relation to Sex*. [1871], I 63-65, 73. In what follows, 'Descent' will refer to this work ('I' to volume I, not part I, 'II' to volume II, not part II), 'Origin' will refer to Darwin, *The Origin of Species* [1859].

[12] *Descent*, I 322.

[13] *Descent*, I 323.

[14] "Hardly any colour is finer than that of arterial blood; [...] though it adds to the beauty of the maiden's cheek, no one will pretend that it has been acquired for this purpose" (*Descent*, I 323).

[15] *Origin*, 253 f.

[16] Cf. *Descent*, I 400.

[17] *Origin*, 117-120, 199, 627.

[18] *Descent*, I 152.

[19] The subtitle is "Selection in Relation to Sex."

[20] Darwin, "A preliminary notice: On the modification of a race of Syrian street dogs by means of sexual selection" [1882], 278.

[21] Cf. Miller, *The Mating Mind* (2000), 51.

[22] Having been rejected for a long time (Ernst Haeckel in *Jena* was one of the few counter-examples), Darwin's theory has in the meantime made a return (especially since Ronald A. Fisher demonstrated the possibility of a "runaway selection" in *The Genetical Theory of Natural Selection* in 1930). But in this return its actual point has been removed. Contemporary Neo-

Darwinists regard sexual selection as just another case of natural selection, thus denying its special character, which Darwin had insisted upon. I will discuss the crucial point of the controversy later on.

[23] Cf. *Descent*, II 398, and *Origin*, 199.

[24] *Origin*, 117.

[25] *Origin*, 117 (cf. also 198).

[26] Of course, male competition is only the standard case in the animal kingdom; there are exceptions. But for simplicity's sake I will restrict my analysis to the standard case, which means to the combination of male competition, male beauty, and female sense of beauty.

[27] Thus far (but only on this first level) the sexual relation can indeed be understood according to the logic of natural selection -- that of fitness. Though not the only selective advantage with respect to the environment (speed and dexterity can do the job), with regard to male competition in its original form, power is the relevant mode of fitness. But at both the further developed stages of sexual selection, other criteria become decisive that no longer follow the natural logic of fitness. The third stage will be characterized by the selectivity of genuinely aesthetic criteria.

[28] *Origin*, 117.

[29] Cf. *Descent*, I 257.

[30] The development of "special means of defence" (*Descent*, II 312) is another, complementary case (cf. also *Descent*, II 313).

[31] "It is evident that the brilliant colours, top-knots, fine plumes, &c., of many male birds cannot have been acquired as a protection; indeed they sometimes lead to danger. [...] they are not due to the direct and definite action for the conditions of life" (*Descent*, II 234).

[32] They "have been acquired in not a few cases at the cost of increased danger from enemies" (*Descent*, II 233). The males' bright colours, for instance, which make them attractive to females, at the same time make them a target for predators. On the other hand, the species can afford the increased danger of the beautiful falling prey to enemies, for there are always many more males than are necessary for reproduction: "the destruction of the males would not be so injurious to the species as that of the females" (*Descent*, I 406).

[33] The great plumes of the Argus pheasant, for example, "prevent the wings from being used for flight" (*Descent*, II 401).

[34] *Descent*, II 398.

[35] *Descent*, II 398. With this shift the contest assumes "a more peaceful character" (*Origin*, 118, cf. also *Descent*, II 313). Already in the animal kingdom (however modestly), aesthetics seems to lead to moral moderation.

[36] *Descent*, II 233. In addition, Darwin thinks that sometimes the females just go for novelty: "It would even appear that mere novelty, or change for the sake of change, has sometimes acted like a charm on female birds, in the same manner as changes of fashion with us" (*Descent*, II 230, cf. also I 65 and II 233). - In the present analysis, I will not

discuss the full range of male charms. I restrict myself to visual animal aesthetics. It should, however, at least be mentioned that Darwin dedicated a long account to "musical charms" in particular. He saw them originating with insects (*Descent*, I 378-385) and reaching their summit (in non-human animals) with birds (*Descent*, II 51-68). He also addressed the importance of "musical tones and rhythm" for "the half-human progenitors of man" (*Descent*, II 334-337).

[37] For instance as "weapons of offence or defense" (*Descent*, II 313, *cf.* also I 257).

[38] *Descent*, II 313.

[39] *Descent*, II 313.

[40] *Descent*, II 398.

[41] *Descent*, II 398.

[42] *Descent*, I 64, II 39, 233.

[43] Though Darwin often speaks of a "sense of beauty" (for instance *Origin* 253, 255, 627, *Descent* I 63-65, I 73), he apparently never uses the term "aesthetic sense." He does however speak of an "aesthetic capacity" (*Descent*, II 401), a "capacity to appreciate beauty" (*Descent*, II 111), and a "capacity to appreciate ornaments" (*Descent*, II 401).

[44] *Descent*, I 262.

[45] *Descent*, II 39.

[46] For example the feathers which cover the root of the peacock's tail and form its fan are so heavy that they scarcely admit quick movements on the ground. Further, "the ornaments of the males [...] have been acquired in not a few cases at the cost of [...] some loss of power in fighting with their rivals" (*Descent*, II 233).

[47] *Cf.*, for instance, Voland: "Beauty itself is not useful, it only signals usefulness" (Voland, "Aesthetic Preferences in the World of Artifacts - Adaptations for the Evaluation of 'Honest Signals?'" [2003], 240).

[48] *Cf.* Benjamin Constant's famous first formulation of the *l'art pour l'art* theorem: "art for art's sake, and without purpose; all purpose denatures art" (Constant, "Journaux intimes, 1804-1807," 65 [February 11, 1804]).

[49] *Descent*, I 262.

[50] *Descent*, I 262.

[51] Although Darwin's theory provides all elements required for this coevolutionary view, Darwin himself tended to lose sight of it in his comments. Instead of emphasizing the coevolution of male beauty and the female sense of beauty, he only stressed the production of male beauty in consequence of female beauty choices (*cf.*, for instance, *Descent*, I 262 *f.* and *Origin*, 254), while seeking to understand the development of the female sense of beauty more as a training effect (this is one of the aspects in which Darwin's account is not free of Lamarckism): "the aesthetic capacity of the females having been advanced through exercise or habit in the same manner as our own taste is gradually improved" (*Descent*, II 401).

[52] *Descent*, I 63.

[53] "If female birds had been incapable of appreciating the

beautiful colours, the ornaments, and voices of their male partners, all the labour and anxiety exhibited by them in displaying their charms before the females would have been thrown away; and this it is impossible to admit" (*Descent*, I 63 f.). "To suppose that the females do not appreciate the beauty of the males is to admit that their splendid decorations, all their pomp and display, are useless; and this is incredible" (*Descent*, II 233). With respect to the Argus pheasant, Darwin says that "many will declare that it is utterly incredible that a female bird should be able to appreciate fine shading and exquisite patterns"; he admits that "it is undoubtedly a marvellous fact that she should possess this almost human degree of taste" (*Descent*, II 93), and that he knows "of no fact in natural history more wonderful than that the female Argus pheasant should be able to appreciate the exquisite shading of the ball-and-socket ornaments and the elegant patterns on the wing-feather of the male" (*Descent*, II 400 f.). Yet he is convinced that one cannot "deny that the female Argus pheasant can appreciate such refined beauty" (*Descent*, II 93).

[54] *Descent*, II 400. The Argus pheasant, for instance, presents "the exquisite shading of the ball-and-socket ornaments and the elegant patterns on the wing-feather [...] during the act of courtship, and at no other time" (*Descent*, II 400 f.).

[55] *Descent*, I 258.

[56] *Descent*, I 258.

[57] Cf. *Descent*, I 262, 421, II 396, 402.

[58] Of the Argus pheasant's hen Darwin says it is "undoubtedly a marvellous fact" that she is "able to appreciate fine shading and exquisite patterns [...], though perhaps she admires the general effect rather than each separate detail" (*Descent*, II 93). The latter comment is not to be understood as restrictive, for in aesthetic respect the concern is not with an objective analysis of details, but with an awareness of the overall aesthetic impression. Precisely such overallness is the indication of a genuinely aesthetic attitude and evaluation (in contrast to a cognitive one).

[59] Cf. Darwin's statement that the female choice is based on excitement or attraction rather than deliberation (Darwin, "A preliminary notice: On the modification of a race of Syrian street dogs by means of sexual selection" [1882], 278).

[60] As will be seen, what is right about the neo-Darwinian and sociobiological conception lies elsewhere: not in the denial of the appreciation of beauty but in the explanation why it is that beauty is appreciated.

[61] Darwin was aware of the difficulty of really proving that the females appreciate beauty as such. With respect to female birds he admitted: "It is [...] difficult to obtain direct evidence of their capacity to appreciate beauty" (*Descent*, II 111). Yet, "in some few instances," he insisted, "it can be shewn that they have a taste for the beautiful" (*Descent*, II 233). Besides humming-birds, bower-birds were his main example (cf. *Descent*, II 112 f.).

[62] Cf. especially the experiments by Michael Tomasello and his team at the Max Planck Institute for Evolutionary Anthropology in Leipzig (for instance: "Chimpanzees understand psychological states -- the question is which ones and to what extent" [2003]).

[63] One could ask where the reluctance to attribute an aesthetic sense to animals (a reluctance that becomes quite evident when one reads the scientific literature) comes from. One explanation is that, despite being the heirs of Darwin, most people today still tend to reserve 'high' capacities exclusively to humans. I cannot go into the details of this anthropic prejudice here (which I already mentioned in passing when pointing out some shortcomings of evolutionary aesthetics before). I will present my full views, a critique and possible overcoming of modern anthropocentrism, in a book forthcoming in 2006. Another reason is that scientific explanation is, for reasons of principle, minimalistic. One is only prepared to admit the 'proven,' not the obvious; too little is better than too much. Yet it appears very strange to people well acquainted with animals that their aesthetic capacities are disputed.

[64] It is also noticeable that the females evaluate the size and number, as well as the perfect symmetry, of the ornaments (cf. Menninghaus, *Das Versprechen der Schönheit* [2003], 156). This is ignored by O'Hear who, having noted that "in a series of observations of peahen-peacock matings, in ten out of eleven successful matings the female chose the male with the highest number of eye-spots in the tail," declares the one exception (where the chosen male had one spot less) an "odd case" (O'Hear, *Beyond Evolution* [1997], 183). It is precisely on aesthetic grounds that a more perfect symmetry can make up for a smaller number of ornaments.

[65] Another argument could be developed from observations of Darwin's which imply intentional behavior on both sides in the process of courtship. Darwin astutely remarked that the males, "though led by instinct," when displaying their beautiful ornaments to the females undoubtedly "know what they are about, and consciously exert their [...] powers" (*Descent*, I 258). Conversely, the females know very well what they are looking for, and they make their choice based on their assessment of beauty. Thus, in courtship both the male and female manifest an awareness of the context of interaction and of the requirement to excel by certain standards; accordingly, their actions are both addressed to one another and directed to fulfilment of the relevant standards. Courtship is thus a complex form of behavior, one distinguished from straightforward or base arousal and the direct fulfilment of sensuous lust. This intentional aspect (which presupposes high mental powers, such as those that Darwin ascribed specifically to birds) provides further support that explicit awareness of beauty is involved here. I owe this argument to Andrew Inkpin.

[66] Another question that arises from Darwin's account but is not addressed by him is that of mixed calculation. According to Darwin, the females generally do not just go for the most beautiful male, but also take fitness into account: the females "select those which are vigorous and well armed, and in other respects the most attractive" (*Descent*, I 262). But Darwin provides no information as to how this mixed calculation is to be imagined.

[67] *Origin*, 255. He repeated his puzzlement in the final chapter (XV): "How it comes that certain colours, sounds, and forms should give pleasure to man and the lower animals, - that is, how the sense of beauty in its simplest form was first acquired, - we do not know any more than how certain odours and flavours were first rendered agreeable" (*Origin*, 627).

[68] Cf. *Descent*, I 64.

[69] *Descent*, II 353.

[70] Cf. the subtitle of Zahavi's *The handicap principle: A missing piece of Darwin's puzzle* (1997).

[71] "[...] sexual ornaments and courtship behaviors evolve as fitness indicators" (Miller, *The Mating Mind* [2000], 104).

[72] The females possess "a detector which [...] assesses the signalers according to their usefulness as partners in sexual [...] contexts"; "aesthetic preferences have evolved as useful decoders of 'honest signals'" (Volland, "Aesthetic Preferences in the World of Artifacts - Adaptations for the Evaluation of 'Honest Signals?'" [2003], 253 resp. 248).

[73] Here it makes no difference in principle whether the recognition of fitness is approached from a close-range or long-range perspective, i.e. whether say smooth skin is considered an indicator of health (with this sufficing for the sexual choice) or whether it is ultimately taken as an indicator of "good genes."

[74] Although "aesthetic judgement" is occasionally still spoken of, what is meant by this is precisely that the judgement is not "aesthetic," but a "sociobiological" one (and so is about fitness or good genes). Extended to the human realm this reads: "Aesthetic perception is essentially an evaluation process and aesthetic judgment in its core is a judgment about the sociobiological quality of those who produce or sponsor costly signals and thus advertise for partners for sexual, political, or moral forms of cooperation" (Volland, "Aesthetic Preferences in the World of Artifacts - Adaptations for the Evaluation of 'Honest Signals?'" [2003], 253).

[75] This position amounts to the view (whether admitted or not, it is unavoidable) that the female actually deciphers the beautiful as a fitness indicator (cf. Voland's talk of "decoding"). The link between beauty and fitness is not to be merely a claim of the theory, but really to exist for the animal. The animal is to have a superior perspective that no longer falls for the superficial appearance of beauty, but which (like a perfect Platonist) sees through beauty straight away to the actual idea: fitness. The animal is as wise as the sociobiologist -- only it is so by instinct, he by science.

[76] It has indeed never been proven.

[77] It is an instance of what Dennett calls "greedy reductionism" (Dennett, *Darwin's Dangerous Idea* [1994], 82): it tries to do away with the aesthetic by declaring it an illusion with fitness recognition being all there really is.

[78] However, I do not want to leave one reservation about the neo-Darwinian and sociobiological explanation unmentioned. Despite its apparent elegance (or simplicity), there is an obvious problem with this theory. It is based on the a priori assumption that fitness regulates everything ("the currency in which the success of every biological trait is measured" is "reproductive fitness": Volland, "Aesthetic Preferences in the World of Artifacts - Adaptations for the Evaluation of 'Honest Signals?'" [2003], 256; of course, this premise also underlies the first version: "sexual ornaments and courtship behaviors evolve as fitness indicators"; fitness indicators [...] are the traits that make fitness visible": Miller, *The Mating Mind* [2000], 104). This fitness axiom, however, is a purely theoretical decree (even prejudice) of almost metaphysical design: it is introduced as a premise instead of being proven or backed up by way of testing. Things just seem

to run smoothly when one takes the overall premise of fitness as a basis. My concern is less with the content of the assumption (it might well be true), rather than with its theoretical status: the hypothesis is stated like a dogma, not suggested as a testable hypothesis (and in fact no proof of it has ever been established). Since fitness is declared to be the ultimate goal in any case; the claim even seems designed to be immune against falsification which, by modern standards of theory, is certainly not a good feature.

[79] Zahavi, for instance, reformulates Darwin's distinction between natural and sexual selection in terms of the distinction between "utilitarian" and "signal selection," but ultimately recognizes only natural selection as operative: "signals, like other traits, evolve through natural selection" (Zahavi, *The handicap principle* [1997], 230). While claiming to have found the "missing piece of Darwin's puzzle," Zahavi is in fact at odds with Darwin's view. Most current evolutionary explanations of beauty are modelled on Zahavi's conception.

[80] My reconstruction and defence of Darwin's position against its current diminution owes much to Menninghaus' comprehensive and well-argued account (Menninghaus, *Das Versprechen der Schönheit* [2003]).

[81] Consider also that beautiful ornaments are displayed and appreciated at no other time than that of female fertility. The Argus pheasant, for instance, presents "the exquisite shading of the ball-and-socket ornaments and the elegant patterns on the wing-feather [...] during the act of courtship, and at no other time" (*Descent*, II 400 f.).

[82] Cf. Miller's view that the beauty instinct in itself is different from the sexual instinct (Miller, *The Mating Mind* [2000], 270, 273).

[83] Reports of 'disinterested' contemplation of things beautiful in the animal kingdom seem to be disputable. The primatologist Harold Bauer, it is said, once observed a chimpanzee lost in contemplation by a spectacular waterfall in the Gombe Forest Reserve in Tanzania (cf. Konner, *The Tangled Wing* [1982], 431 f., and Orr, "Love it or lose it: the coming biophilia revolution" [1993], 423). But 'contemplation' is not the only possible interpretation of this case (cf. Konner, 523). Another interesting occurrence was documented by Heinz Sielmann. He filmed a male bower-bird (I will discuss the peculiarities of bower-birds later) who put a bloom in its bower, then took a step back and contemplated his work - obviously unsatisfied he took the bloom out again, put it back in a slightly different placement, and apparently found the new position right. (Eibl-Eibesfeldt, "Ernst Haeckel - Der Künstler im Wissenschaftler" [1998], 20). This case indeed looks very much like an act of contemplation.

[84] Cf. Dutton's critical remark about "limits of evolutionary psychology," in: "Aesthetics and Evolutionary Psychology" (2003), 703.

[85] I will abstain here from discussing the theorem of "disinterestedness." Its understandable meaning was to distinguish aesthetic interest from other interests. The mistake, however, was in wanting not to admit even a genuine *aesthetic interest* as being constitutive of aesthetic judgment. That is on the one hand highly counterintuitive (and Kant's justification for the theorem turned out to be conceptually hopelessly inconsistent; it is a wonder that this has not been noticed until now). On the other hand, the theorem of putative

disinterestedness in fact worked towards a *cognitive* usurpation of the aesthetic, as is palpable with prominent authors of classic aesthetics (think, say, of Schelling or Hegel; cf. my essay "Philosophy and art - a fluctuating relationship" [2004]). Kant had already paved the way for such cognitive orientation of the aesthetic when he identified the form of the judgement of taste with the basic form of cognitive judgement -- as "the mental state in the free play between imagination and understanding, insofar as they harmonize with each other as required for *cognition in general*" (Kant, *Critique of Judgment* [1790], B 29 [§ 9]; cf. for further details my *Vernunft* [1995], 492-494).

[86] "The very incapacity of the sexual instinct to yield complete satisfaction as soon as it submits to the first demands of civilization becomes the source [...] however, of the noblest cultural achievements which are brought into being by ever more extensive sublimation of its instinctual components" (Freud, "On the universal tendency to debasement in the sphere of love" [1912], 190). "Sublimation of instinct is an especially conspicuous feature of cultural development; it is what makes it possible for higher psychical activities, scientific, artistic or ideological, to play such an important part in civilized life" (Freud, "Civilization and its Discontents" [1930], 97).

[87] *Descent*, II 353.

[88] *Descent*, II 402. Significantly, Darwin's first mention of the "sense of beauty" in the *Descent* is found in the Part I in section "Comparison of Mental Powers of Man and the Lower Animals" (*Descent*, I 63-65). Likewise, in Part II he linked the treatment of the "taste for the beautiful" found in birds with the account of their "mental qualities" (*Descent*, II 108). "In the lower divisions of the animal kingdom, sexual selection seems to have done nothing: such animals are often affixed for life to the same spot, or have the two sexes combined in the same individual, or what is still more important, their perceptive and intellectual faculties are not sufficiently advanced to allow of the feelings of love and jealousy, or of the exertion of choice. When, however, we come to the Arthropoda and Vertebrata, even to the lowest classes in these two great Sub-Kingdoms, sexual selection has effected much; and it deserves notice that we here find the intellectual faculties developed [...] to the highest standard" (*Descent*, II 396).

[89] *Origin*, 255.

[90] *Descent*, II 402.

[91] *Cf.*, for instance, his regret that "we really know little about the minds of the lower animals" (*Descent*, II 400).

[92] Darwin had explained the *cognitive continuity* between animals and humans in the first part of the *Descent*. *Cf.* the famous phrases "My object in this chapter is solely to shew that there is no fundamental difference between man and the higher mammals in their mental faculties" (*Descent*, I 35) and "[...] the difference in mind between man and the higher animals, great as it is, is certainly one of degree and not of kind" (*Descent*, I 105). He was to explain the *emotional continuity* (mentioned in passing in the *Descent*: I 5) in 1872 in *The Expressions of the Emotions in Man and Animals*. Here, in the second part of the *Descent*, he deals with *aesthetic continuity*.

[93] "We may infer from all this that a nearly similar taste for beautiful colours and for musical sounds runs through a large

part of the animal kingdom" (*Origin*, 254).

[94] *Descent*, I 64. "No doubt the perceptive powers of man and the lower animals are so constituted that brilliant colours and certain forms, as well as harmonious and rhythmical sounds, give pleasure and are called beautiful" (*Descent*, II 353). "The taste for the beautiful, at least as far as female beauty is concerned, is not of a special nature in the human mind" (*Descent*, I 64).

[95] *Descent*, II 39.

[96] *Descent*, II 401. - Cf. in particular his attribution of an "almost human degree of taste" to the female Argus pheasant (*Descent*, II 93) and his supposition that "'Pea-hen' admires peacock's tail, as much as we do" (Darwin, "Notebook N," 581).

[97] *Descent*, II 401. Cf. also: "The perception, if not the enjoyment, of musical cadences and of rhythm is probably common to all animals, and no doubt depends on the common physiological nature of their nervous systems" (*Descent*, II 333).

[98] *Descent*, I 64.

[99] *Descent*, I 64.

[100] *Descent*, I 64. - Darwin even ponders whether the aesthetic sense of our earlier ancestors might have been less developed than that of birds: "Judging from the hideous ornaments and the equally hideous music admired by most savages, it might be urged that their aesthetic faculty was not so highly developed as in certain animals, for instance, in birds" (*Descent*, I 64).

[101] In fact, he never makes this claim, as far as I know, but I'm pretty sure he thought this way.

[102] *Descent*, II 93.

[103] Cf. Richter, *Die Herkunft des Schönen* [1999], 288 f.

[104] It should indeed be easy to complement Darwin's primarily sexual aesthetics with cognitive aesthetics, as Darwin himself pointed out that intellectual capacities are important for the aesthetic sense and that both co-develop in the evolution of the cerebral system.

[105] In his account of animal aesthetics, Darwin is from the start very sensitive to phenomena of transfer. In general he states that "organs and instincts originally adapted for one purpose" have later on "been utilised for some quite distinct purpose" (*Descent*, II 335). Weapon-building was one case. Originally developed for natural purposes (as means of defense against enemies or of offence against victims of other species), the weapons were later on enlarged for the sexual struggle between males (cf. *Descent*, I 257), and could finally become more and more ornamental: "Various crests, tufts, and mantles of hair, which are either confined to the male, or are more developed in this sex than in the females, seem in most cases to be merely ornamental, though they sometimes serve as a defence against rival males. There is even reason to suspect that the branching horns of stags, and the elegant horns of certain antelopes, though properly serving as weapons of offence or of defence, have been partly modified for the sake of ornament" (*Descent*, II 313). So there is aesthetic modification of natural traits and transfer from natural to aesthetic purposes; and the latter (aesthetic caprice) can be in

tion with the former as well as, later on, be co-opted again by natural requirements. With respect to such processes, Darwin notes that "in most cases it is scarcely possible to distinguish between the effects of natural and sexual selection" (*Descent* I 257). This is not meant to say (as Neo-Darwinists would have it) that the distinction between sexual and natural selection is shallow (cf. Darwin's insistence on "the importance of this distinction," *Descent*, I 257), but to point out that sexual selection is intertwined with natural selection and that it makes its way in departure from products of natural selection, which are then, however, subject to their own, especially aesthetic, line of development. Finally, the aesthetic realm itself underwent modifications via stages leading from mere power struggles to the use of special weapons and finally to courtship.

[106] Cf. Diamond, "Evolution of bowerbirds' bowers: animal origins of the aesthetic sense" [1982]).

[107] Cf. also the case documented by Sielmann (see footnote 83).

[108] Darwin agreed with John Gould's statement that "these highly decorated halls of assembly must be regarded as the most wonderful instances of bird-architecture yet discovered" (*Descent*, II 113).

[109] I see a task of evolutionary aesthetics in clarifying these further stages of development not by introducing something quasi new without prior determinants, but by analyzing the step-by-step formation of higher levels. In this way evolutionary aesthetics should succeed in also contributing to the understanding of paradigmatic features of traditional aesthetics instead of merely fending it off. This, of course, also applies the other way round: The aesthetic features listed by O'Hear, for example (O'Hear, *Beyond Evolution* [1997], 178-190), would be better understood not as indicating limitations of evolutionary theory's explanatory power, but as features that stand in need of a grounding in evolutionary explanation.

[110] Whereas Darwin tended to treat the subject a bit too much in the style of a sudden emergence of the aesthetic, as if it were to arise (as far as the scale of pleasure is concerned) out of the blue. For an analysis of the structure and development of pleasure as I'm proposing it here, inspiration might be found in Hegel's penetrating views on the animal condition (to be found especially in his *Encyclopaedia*).

References

Aiken, Nancy E., *The Biological Origins of Art* (Westport, Conn.: Praeger, 1998).

Constant, Benjamin, "Journaux intimes, 1804-1807" [1887], *Œuvres complètes. Série Œuvres, vol. VI: Journaux intimes (1804-1807) suivis de Affaire de mon père (1811)* (Tübingen: Max Niemeyer, 2002), 29-576.

Darwin, Charles, "Notebook N," *Notebooks, 1836-1844. Geology, Transmutation of Species, Metaphysical Enquiries*, eds. Paul Barrett e.a. (Cambridge: Cambridge University Press, 1987), 563-596.

- *The Origin of Species* [1859] (New York: Modern Library, 1998).

- *The Descent of Man, and Selection in Relation to Sex* [1871] (Princeton: Princeton University Press, 1981).

- *The Expression of the Emotions in Man and Animals* [1872] (Oxford: Oxford University Press, 31998).

- "A preliminary notice: On the modification of a race of Syrian street dogs by means of sexual selection" [1882], *The Collected Papers of Charles Darwin* (Chicago: Chicago University Press, 1977), 278-280.

Dennett, Daniel, *Darwin's Dangerous Idea: Evolution and the Meanings of Life* (New York: Simon & Schuster, 1994).

Diamond, Jared M., "Evolution of bowerbirds' bowers: animal origins of the aesthetic sense," *Nature*, vol. 297 (May 1982), 99-102.

Diderot, Denis, "Encyclopédie" [1755], *Œuvres complètes, vol. VII: Encyclopédie III* (Paris: Hermann, 1976), 174-262.

Dissanayake, Ellen, *Homo Aestheticus: Where Art Comes From and Why* (Seattle: University of Washington Press, 1997).

- "' Making Special': An Undescribed Human Universal and the Core of a Behavior of Art," *Biopoetics: Evolutionary Explorations in the Arts*, eds. Brett Cooke and Frederick Turner (Lexington: ICUS, 1999), 27-46.

- *Art and Intimacy: How the Arts Began* (Seattle: University of Washington Press, 2000).

Dutton, Denis, "Aesthetics and Evolutionary Psychology," *The Oxford Handbook for Aesthetics*, ed. Jerrold Levinson (New York: Oxford University Press, 2003), 693-705.

Eibl-Eibesfeldt, Irenäus, "Ernst Haeckel - Der Künstler im Wissenschaftler," *Ernst Haeckel, Kunstformen der Natur* (Munich: Prestel, 1998), 19-29.

Etcoff, Nancy, *Survival of the Prettiest: The Science of Beauty* (New York: Doubleday, 1999).

Fisher, Ronald, *The Genetical Theory of Natural Selection* (Oxford: Clarendon, 1930).

Freud, Sigmund, "On the universal tendency to debasement in the sphere of love" [1912], *The Standard Edition of the Complete Psychological Works of Sigmund Freud*, vol. XI (London: The Hogarth Press, 1957), 177-190.

- "Civilization and its Discontents" [1930], *The Standard Edition of the Complete Psychological Works of Sigmund Freud*, vol. XXI (London: The Hogarth Press, 1961), 64-148, here 190.

Grammer, Karl & Fink, Bernhard & Møller, Anders P. & Thornhill, Randy:

"Darwinian aesthetics: sexual selection and the biology of beauty," *Biological Review* 78 (2003), 385-407.

Heerwagen, Judith H. and Orians, Gordon H., "Humans, Habitat, and Aesthetics," *The Biophilia Hypothesis*, eds. Stephen R. Kellert and Edward O. Wilson (Washington, D.C.: Island Press, 1993), 138-172.

Hegel, Georg Wilhelm Friedrich, *Aesthetics. Lectures on Fine Art* [1817-29], vol. I, trans. T.M. Knox (Oxford: Oxford University Press, 1975).

Kant, Immanuel, "Menschenkunde" [Vorlesung Winter 1781/82], *Gesammelte Schriften*, Bd. 25 (Berlin: de Gruyter, 1997), 849-1203.

Kaplan, Stephen, "Environmental preference in a knowledge-seeking, knowledge-using organism," *The Adapted Mind: Evolutionary Psychology and the Generation of Culture*, eds. Jerome H. Barkow, Leda Cosmides, and John Tooby (New York: Oxford University Press, 1992), 581-600.

Konner, Melvin, *The Tangled Wing* (New York: Harper, 1982).

Menninghaus, Winfried, *Das Versprechen der Schönheit* (Frankfurt/Main: Suhrkamp, 2003).

Miller, Geoffrey F., *The Mating Mind. How Sexual Choice Shaped the Evolution of Human Nature* (New York: Doubleday, 2000).

- "Aesthetic fitness: How sexual selection shaped artistic virtuosity as a fitness indicator and aesthetic preferences as mate choice criteria," *Bulletin of Psychology and the Arts* 2/1 (2001), 20-25.

O'Hear, Anthony, *Beyond Evolution. Human Nature and the Limits of Evolutionary Explanation* (Oxford: Clarendon, 1997).

Orians, Gordon H. and Heerwagen, Judith H., "Evolved Responses to Landscapes," *The Adapted Mind: Evolutionary Psychology and the Generation of Culture*, eds. Jerome H. Barkow, Leda Cosmides, and John Tooby (New York: Oxford University Press, 1992), 555-579.

Orr, David W., "Love it or lose it: the coming biophilia revolution," in: *The Biophilia Hypothesis*, eds. Stephen R. Kellert and Edward O. Wilson (Washington, D.C.: Island Press, 1993), 415-440.

Richter, Klaus, *Die Herkunft des Schönen>. Grundzüge der evolutionären Ästhetik* (Mainz: Zabern, 1999).

Thornhill, Randy, "Darwinian Aesthetics," *Handbook of Evolutionary Psychology*, eds. Charles Crawford and Dennis L. Krebs (Mahwah, NJ: Erlbaum, 1998), 543-572.

Thornhill, Randy and Gangestad, Steven W., "Facial attractiveness," *Trends in Cognitive Science* 3 (1999), 452-460.

Tomasello, Michael & Call, Josep & Hare, Brian, "Chimpanzees understand psychological states - the question is which ones and to what extent," *Trends in Cognitive Science* 7 (2003), 153-156.

Ulrich, Roger S., "Biophilia, Biophobia and Natural Landscapes," *The Biophilia Hypothesis*, eds. Stephen R. Kellert and Edward O. Wilson (Washington, D.C.: Island Press, 1993), 73-137.

Voland, Eckart, "Aesthetic Preferences in the World of Artifacts - Adaptations for the Evaluation of 'Honest Signals'?", *Evolutionary Aesthetics*, eds. Eckart Voland and Karl Grammer (Berlin: Springer, 2003), 239-260.

Welsch, Wolfgang, *Vernunft. Die zeitgenössische Vernunftkritik und das Konzept der transversalen Vernunft* (Frankfurt/Main: Suhrkamp, 1995).

- "Art Transcending the Human Pale - Towards a Transhuman Stance," *International Yearbook of Aesthetics*, Volume 5: "Aesthetics of Transhumanity: Beauty, Nature, Universe" (2001), 3-23.

- "Philosophy and Art - a fluctuating relationship," *Aesthetics and Beyond* (Changohun, PR China: Jilin People's Publishing House, 2004).

Zahavi, Amotz and Avishag, *The handicap principle: A missing piece of Darwin's puzzle* (New York: Oxford University Press, 1997).

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