

What Makes a Pretty Face?: The Biological Basis of Beauty

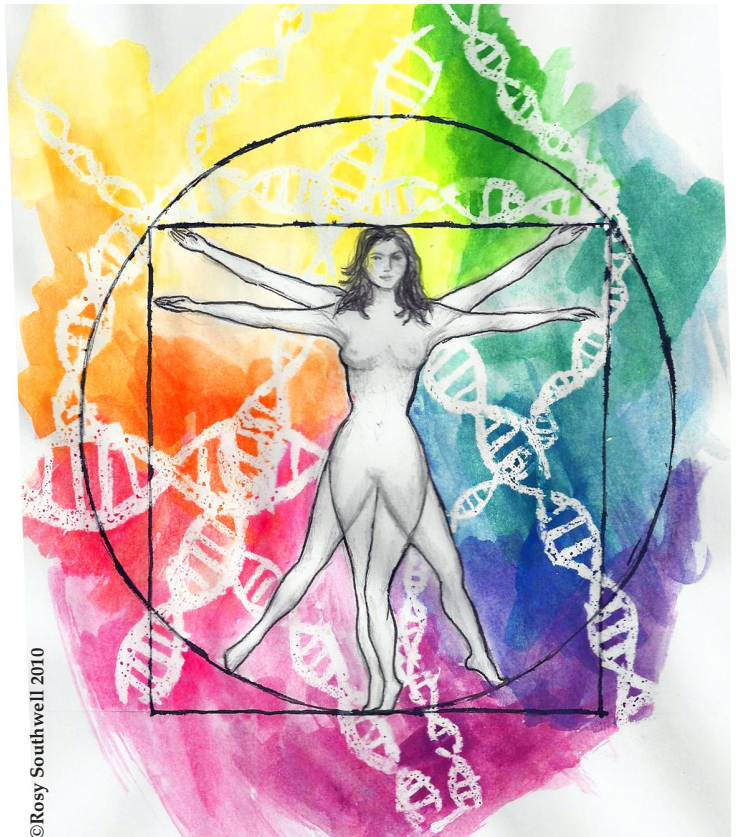
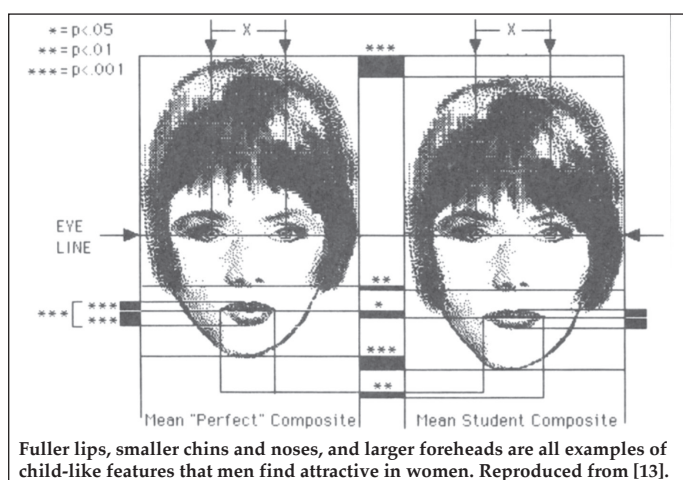
Thomas Gizbert

Poet and philosophical essayist Kahlil Gibran wrote in the early 20th century, “Beauty is not in the face; beauty is a light in the heart” [1]. However, a number of recent studies are building a scientific case against this statement, claiming that beauty resides not in the heart, but in the evolution of elements of the face and brain.

The emerging discipline of evolutionary psychology is based on the idea that not only have our physical traits been shaped by our adaptation to our ancestral environment, but our behaviour and preferences have likewise been shaped by natural selection [2]. This has led to many studies investigating the evolutionary reasons for the human concept of beauty, and their results are often surprising. Mostly, these studies examine whether a particular trait – for example symmetry, colour, and facial hair – is correlated with perceived attractiveness, and in doing so they focus on the biological and evolutionary reasons why some faces are commonly judged to be more attractive than others. They show that despite the old adage “beauty is in the eye of the beholder”, there are a number of traits which are generally and cross-culturally perceived as more attractive than others. However, this approach has come under much criticism – not only methodologically, but also from those who argue that attractiveness should be studied as a cultural concept only, or those who argue that it should not be studied at all [3].

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Studies of human beauty are not new: Pythagoras put forward a theory that physical beauty derived from the sub-



ject's proportions and the golden ratio in the sixth century BC, and fields as diverse as art, sociology, and cosmetic surgery have also addressed the subject [1]. However, the evolutionary psychological approach is unique, in that it proposes a scientific basis couched in evolutionary logic for why we perceive certain markers to be more attractive than others. Its practitioners argue that the features that men and women find attractive are biological signals of a good-quality mate.

One of the predictions that evolutionary psychologists make regarding mate choice regards age preference. Due to the fact that women's reproductive fitness is more influenced by age, men will be pickier about their partners' ages, tending to go for younger – or younger-looking – women. In a 2002 study, de Sousa Campos et al. showed that the number of responses to women's personal ads decreased with the advertiser's age, while responses to men's increased [4]. D. Jones, in his 1995 study 'Sexual Selection, Physical Attractiveness, and Facial Neoteny', returned similar results, showing that men prefer women who possess youthful features, including large eyes, small noses, and full lips. More surprisingly, a collection of photographs of models' faces were analysed for eye width, nose length, and lip height, and on the basis of these measurements were calculated to have similar facial dimensions to girls aged between 6.8 and 7.4 years. Jones states that “a by-product of the human



A composite of faces with high (left) and low (right) levels of oestrogen. Reproduced from [6].



From left to right: a composite average of male faces; a composite of the faces preferred by women at the low-risk part of their menstrual cycle; a composite of the faces preferred by the women at the high-risk phase of their cycle. Reproduced from [7].

male's attraction to markers of youthful fecundity may be an attraction to adult females presenting markers of youth to an exaggerated or 'supernormal' degree" [5].

Facial markers which indicate hormone levels often affect how attractive a face is perceived to be. Law Smith et al. (2006) found that women with greater oestrogen levels are generally considered to be more feminine, attractive, and healthy, with fuller lips and smaller lower jaws. As high levels of oestrogen correlate with high fertility in women, this might mean that – as with youth – these features are attractive because they are indications of a good mate in biological and evolutionary terms. An interesting note is that women who wear makeup are similarly seen to be more feminine, attractive, and healthy; perhaps this means that

“ A more masculine face is preferred when conception risk is high. ”

makeup mimics high levels of oestrogen. Law Smith et al. write that “The use of make-up may compensate for or mask cues indicating low hormone levels, making perceivers unable to form attributions based on natural hormonal cues” [6].

Just as a high level of oestrogen is correlated with attractiveness in women, high levels of testosterone, the male sex hormone, are linked to attractiveness in men—but not in the same way. Johnston et al. (2001) suggested that while women do prefer male faces which have markers of masculinity – a broader jaw, a pronounced brow, and jutting cheekbones – and that these characteristics are also associ-

ated with good health in males, too much masculinisation leads to increased perception of dominance, unfriendliness, and other negative traits.

Furthermore, women prefer different levels of masculinisation depending on where they are in their menstrual cycle; a more masculine face is preferred when conception risk is high. The fact that the beholder's concept of beauty changes as a result of biological mechanisms emphasises the idea that beauty is itself a psychological construct. The researchers write “When viewed from this perspective, male facial beauty may be an evaluative feeling evoked by attributes that were more important in a hunter-gatherer era than today's environment” [7]. Indeed, men who women rate higher for attractiveness tend to have above-average semen quality (that is, sperm count, morphology, and mobility), lending weight to the hypothesis that attractive features are those which advertise a good choice of mate in genetic and biological terms, in both males and females [8].

Not only does the face provide information about the ability of a potential mate to reproduce, but also it can provide information about health; poor health in a parent might

“ Symmetrical men are quicker to copulate in romantic relationships. ”

mean that offspring survival rates are lowered, due either to poor development in the womb or while breastfeeding due to malnutrition, or because a parent in low health is less likely to be able to provide for offspring.

One of the ways in which facial features signify health is through colour and texture. Jones et al. (2004) found that young men with attractive faces have skin that looks healthier; in this study, subjects rated photos of men's faces for attractiveness, and photos of a small area of cheek skin for perceived skin health. The two correlated strongly, suggesting that attractiveness is partially affected by skin colour and texture [9].

Another measure of health is facial symmetry. Evolutionary psychologists point out that bilateral symmetry is difficult to maintain, and stresses during development – such as illness or malnutrition – can cause asymmetrical growth, making symmetry a good marker for overall health. And indeed members of both sexes perceive symmetrical faces to be more attractive than asymmetrical ones [3]. Thornhill et al. (1995) found that an increase in levels of symmetry in males is also correlated with an increased incidence of female orgasm in their sexual partners. Furthermore, symmetrical men are quicker to copulate in romantic relationships. The authors of the study write: “Our findings suggest that human female orgasm is designed to retain sperm of men of high developmental stability, and perhaps the sperm of men who are facially attractive and large in body size” [10].

These new revelations about the adaptive purposes of certain facial features have led some to theorise that sexual selection is among the evolutionary pressures which have led humans to look and act the way they do: humans have their distinctive features for the same reason that peacocks have their large tails. Biologist R. A. Fisher termed this pattern of

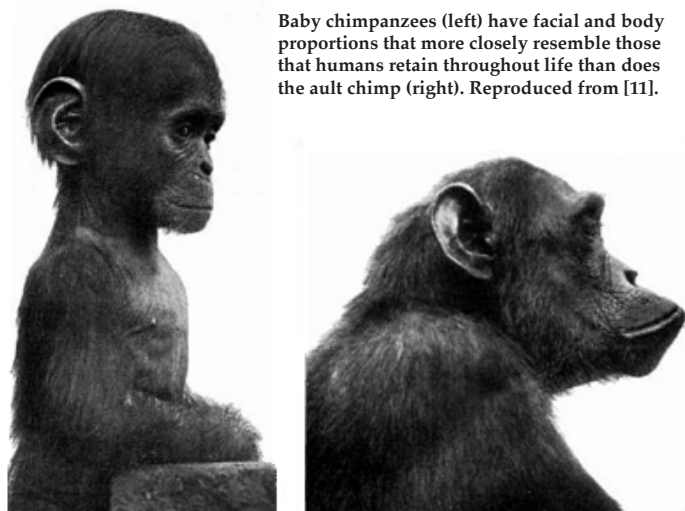
selection ‘the runaway effect’. In this model, a certain trait ceases to be selected for due to any benefits it might incur for the bearer, and instead it is selected for simply because the selection is self-reinforcing. For example, any rebellious peahen which showed a preference for shorter tail length would not be able to pass on this preference, as any male

“**Humans have their distinctive features for the same reason that peacocks have their large tails**”

offspring she had would have shorter tails, and thus be less successful at mating. This causes males to be saddled with longer and longer tails, until the costs of growing the tail any more outweigh the benefits [2].

An example of this type of selection in humans might be in neoteny – the retention of child-like or baby-like features. Foetal and baby chimpanzees, for instance, have much shorter faces, are less hairy, and generally look more like humans. This has led some to theorise that human appearance is a result of intense sexual selection for neoteny – that we have evolved to look like baby chimpanzees – perhaps due to the greater fitness advantage held by women who have younger-looking features [11].

Despite all of the advances made in the field of evolutionary psychology of mate choice and facial attractiveness, there remain some who resist the idea that this area of study can shed light on the human aesthetic. David Perrett, a psychologist at the University of St. Andrews, writes that



Baby chimpanzees (left) have facial and body proportions that more closely resemble those that humans retain throughout life than does the adult chimp (right). Reproduced from [11].

“Once I began working on what makes faces attractive, the reactions my work received from fellow academics and others really surprised me: some people argued that human beauty should not be studied; most questioned whether it could be studied at all” [1]. Apart from criticisms of Darwinian theory and evolutionary psychology in particular, criticisms of the very concept of beauty abound. Naomi Wolf’s book *The Beauty Myth*, for example, argues that the concept of beauty and attractiveness has been perpetuated in order to keep women in their place, while social anthropologists and other social scientists tend to emphasise the interpersonal interaction aspect to attractiveness, while minimising any objective element to it [12]. In philosophy, as in other arts disciplines, the maxim seems to stay “beauty is in the eye of the beholder” [1].

The question thus arises of why the evolution of facial attractiveness is worth studying. One answer deals itself with the cultural effects of beauty: Viren Swami and Adrian Furnham write in *The Psychology of Physical Attraction* that “understanding beauty from a scientific point of view will enable us better to deal with some of the effects of beauty, especially where the excessive pursuit of beauty becomes detrimental, damaging, even pathological” [1]. In a society in which women look up to airbrushed supermodels as archetypes of physical attractiveness and cosmetic surgery provides the means to alter one’s appearance to order, understanding the psychology of beauty seems more important than ever before. David Perrett gives another answer: that it would be beneficial to move beauty from the exclusive domain of philosophy, poetry, and art and towards psychology and science. He states that “it is the evolving human mind which perceives and prefers... perhaps one day we will learn that what we find attractive in nature and art reflects, in part, what we are attracted to in humans” [3].

It seems that this expanding field will not stop growing in the foreseeable future. As more traits – not just facial, but in body and behaviour – are found to correlate with attractiveness, our picture of the biological basis of beauty will become more filled out, perhaps to the point where it can compete with the widely-held cultural view of individual, subjective aesthetics. This exciting new discipline is pushing the boundaries of what science can and cannot tell us about the way we see the world around us, telling us that beauty is not in the eye, but in the specific adapted cognitive modules of the beholder. ■

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