

## Evolutionary and cultural transmission of physical attractiveness perceptions

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This study deals with the evolution and transmission of human perceptions of physical attractiveness. It is contended that these perceptions are based on two mechanisms: one is common to all organisms and the other one is unique to the human species. Most of our perceptions are a product of pure evolutionary processes determined to recognize best mate and to enhance inclusive fitness. Nevertheless, due to the evolution of mind and culture, these perceptions have undergone an intricate development that distinguishes them from the perceptions of other organisms. This transformation implies that human perceptions of physical attractiveness may occasionally comply to socio-cultural rather than natural adaptive necessities.

Key words: physical attractiveness, cultural transmission.

Contemporary human preferences for appearance and beauty are a product of a long evolution starting millions of years ago. Yet, these preferences are based on determinants somewhat differing from those of other organisms. On one hand, observations on other living creatures confirm that the current cues of human physical attractiveness, their sophistication notwithstanding, are originating in rudimentary motives. On the other hand, human beings have developed in the short span of roughly 10–20 thousand years an intricate usage and perceptions of physical attractiveness, which could have hardly been shaped by evolutionary processes. This recent development is associated with socio-cultural transformations, which occasionally do not comply with adaptive needs and necessities of nature. In the following article the relations between natural evolution and cultural development are explored, and the dual transmission of physical attractiveness perceptions is discussed.

### **The role of physical attractiveness perceptions in nature**

Physical and behavioral characteristics are ordained to serve a specific function, or in other

words they are 'adaptive'. In the long run we can expect that "only characters which confer a positive biological advantage can survive for long against the forces of mutation and selection" (Hinde, 1975, p. 7). Animals' physical appearance accented through behavior is also the main cue for mate selection. Animals' size and form, for example, often determine domination as well as courting success.

In most animals males are the active party in mating, and tend to use their physique in two variations: on one hand they use their offensive features during competition with same sex rivals on territory and access to sexually receptive females, and on the other hand they display their physical prowess and decoration in front of the females while courting. The persistent preference for mating with those having certain properties, led to the perpetuation of these properties in the subsequent generations. Slow changes often led to the emergence of marked morphological differentiation of sexes (Crook, 1972).

Further utilization of physical appearance has emerged due to a gradual diversity of mating systems. The evolution of mating systems occurred according to Selander (1972) along the following lines: They originated as ecological adaptations effecting individuals fitness (Lack, 1968); both gen-

ders' reproductive success assumed importance for their creation (Orians, 1969); and various factors related to them (e.g., sex ration, dimorphism, maturation rate) have been a consequence rather a cause of the relation (Selander, 1965).

The sexual differences in mating behavior has an obvious cause. Males and females in nature are affected differently by selection. Females reproductive success is ordinarily limited by the amount of resources available to her, whereas the male is limited by the number of matings he can gain. These marked differences, followed with behavioral distinction, correspond with the commonly distinct sexual appearance.

### Evolutionary transmission of physical attractiveness perceptions

Perceptions of physical attractiveness are essential for survival and further for mate selection. In this vein, apart from adaptive forces, these perceptions may shape physical features too. How are these perceptions transmitted in nature?

Basically, there are two mechanisms through which they are transmitted or modified: natural selection and sexual selection.

The term *natural selection* means that individuals of a species whose characteristics best fit them for survival are the ones to contribute most offspring to the next generation. Obviously, these offspring will be phenotypically and genotypically similar to their parents, and therefore the species' adaptation to the environment would somewhat improve. Simply speaking, this mechanism of evolutionary change works in a way that "an early bird gets the worm, a later does not; one worm get eaten; a different one escapes; one kind of organism establishes itself in a new habitat, another kind dies out" (Williams, 1989, p. 181). Selecting a mate for reproduction as well as avoiding a superior rival, both are based on physical characteristics, that in human terms represent various degrees of 'physical attractiveness'. In contrast, misinterpreting which features indicate reproductive superiority or agility, may decrease the survival probability of an individual.

Viewing the crucial role of perceiving self and others physical features, it is indisputable that each species has its own mechanisms to detect and evalu-

ate these features. Numerous studies have confirmed that animals have a clear perception of relative size, strength, and even the less evident feature of fertility. One fine example for the capability to assess quality through phenotypic features is the subtle fluctuating asymmetry of bilateral character, probably the result of imprecise expression of developmental design. Recently, several studies demonstrated the capacity of scorpionflies, swallows, and drosophila to choose mate partly because of their lack of marked fluctuating asymmetry (e.g., Markow & Ricker, 1992).

Compared with adaptive features, the role of 'non-utility' features (such as the peacock's tail), that rather than supporting survival, sometimes even contradicting natural selection, remained for long time an acute puzzle for evolutionary theorist.

The debate over the source of 'non-utility' cues in animals such as the excessive appearance differences between males and females as well as ornamentation, has begun with Charles Darwin's publication of *The Descent of Man and Selection in Relation to Sex* in 1871. Darwin assumed that most aspects of sexual dimorphism are the result of *sexual selection*. He hypothesized two means of sexual selection among animals: The struggle among males (*intrasexual selection*), and the females' choice of mate (*intersexual selection*). The latter occurs through the utilization of physical cues or even the existence of 'aesthetic' ability: "... So it appears that female birds in a stage of nature, have a long selection of the more attractive males added to their beauty or other attractive qualities" (Darwin, 1871, p. 211).

Several meta-premises characterize Darwin's ideas about sexual selection. First comes his notion of female's 'aesthetic preference' or 'good judgment'. Darwin contended that females perform this preference separately from utility consideration (e.g., vitality). Apparently, he believed that this preference demands a perceptual and emotional capacity that birds, reptiles, and even insects possess (Cronin, 1991; Darwin, 1871; Kottler, 1980). The 'beauty' of animals was created for the sake of beauty: "The most refined beauty may serve as a charm for the female, and for no other purpose" (Darwin, 1871, p. 92). Nevertheless, Darwin argued that having such ornamentation, the gains for a male struggling

against other males, are greater than the cost the species pays in environmental adaptation loss. Thus, the sexual selection is ultimately checked by the natural selection rather than risks the species survival (1871, pp. 278–279).

In contrast, Alfred Russel Wallace, Darwin's contemporary who also focused on birds, theorized that the coloration dimorphism concerns quality or further 'a good sense': It originates in the females' greater need for protection (1889, p. 273), and serves as an indication of the male's vitality, that reaches its peak during the mating period (1891, p. 379). Maynard Smith (1956) provided a keen portrayal of female choice in the fruit fly (*Drosophila subobscura*): When a female and a male are brought together in a suitable mating conditions, the male approaches the female and circles round her until he faces her head to head. Then for one or two seconds the female steps to one side and the male follows her. Following the short 'dance' the female may fly away, or stands still waiting for the male to mount on her. Maynard Smith found that the female is much more likely to fly when the male is inbred, old, or injured. Back to Wallace, he has fiercely opposed not only the Darwinian notion that the most beautiful (male) is chosen simply because of being the most beautiful, but the whole idea of female choice. By arguing that the female choice has insignificant evolutionary effect, he virtually denied sexual selection.

The dramatic Darwin-Wallace debate seemed at last to reach a resolution by R.A. Fisher (1915, 1930), who combined Darwin's aesthetic preference with Wallace's adaptive forces. Fisher's maintained that to follow the prevalent aesthetic preference can be adaptive for a female because the benefits for the offspring; the next generation's males would inherit their father attractiveness advantage, whereas the females would obtain their mothers' preference advantage (Cronin, 1991, pp. 201–204). Obviously, the selection criterion is relative rather absolute, in order to produce continuous change in the male appearance as well as behavior (Trivers, 1972). Female choice fits the current sociobiological contention that "...selection is not for the good of the species. It is for the good of the individual, and perhaps indirectly for those around the individual" (Ruse, 1987, p. 68). Ultimately, their taste is aimed at survival but constantly shaped by the environment. In

this fashion the adaptive pressures limit even the so-called 'non-utility' features such as animals 'taste'.

In later years, the discussion about female choice in the animal world have changed its course into the link between the magnitude of sexual selection and mating system, which are concerned particularly with the marked difference between monogamous and polygynic species, as well as between species where males participate in offspring rearing and species where males are merely sperm donor. While sexual selection among former species is limited, it is significant among the latter (Huxley, 1938; Orians, 1969; Selander, 1965). Trivers (1971, 1972) generated probably the most important suggestion lately concerning sexual selection, the notion of parental care. Females as the party concerned with rearing offspring, tend to select males that can properly assist in increasing immediate offspring survival, as well as survival in the long run to be measured by social and genetic advantage (this determinant is referred as sustenance ability in the next stage). In order to fulfill this task, females' criteria for male selection are: ability to fertilize eggs, quality of genes, and value (quantity and quality) of parental care.

Final remark regarding sexual selection concerns the concept of Zahavi's concept of 'handicap principle', which accounts for the selection of mate with sexual characteristics to the point of serious handicap (Zahavi, 1975, 1987). Zahavi contended that because females cannot recognize genes indicating high fitness, males who survived to breed despite of their handicapping features, must have high fitness.

In fact, animals in nature do not distinguish between particular determinants but rather examine each other totally, a kind of 'gestalt evaluation'. Darwin, bringing this issue in several occasions, denied unequivocally the possibility that "... the female studies each stripe or spot of color; that the peahen, for instance, admires each detail in the gorgeous train of the peacock— she is probably struck only by the general effect" (1871, p. 93). This view of animals attractiveness preference was supported later by several other scholars (Ghiselin, 1974; Gould, 1983; Gray, 1988; Lewontin, 1978). Furthermore, the general factors determine the development of physic-

al attractiveness are interrelated in numerous ways.

### Physical attractiveness evolution in human beings

Darwin's idea of animals' sense of beauty has incited a furious opposition. He believed that there is a continuum of aesthetic sense that stretches between the 'lowest animals' on one hand and mankind on the other. Many of his contemporary, however, felt that this sense is unique to human, the way appreciation of fine art is. The philosophic contention over the human pre-eminence above the beast has begun much before than Darwin's time. Still, from biological, psychological, and particularly cognitive viewpoint some differences as well as similarities are well established. From sociological perspective the onset of culture, primitive as it was, has marked a singular stage. Likewise, the significance of physical appearance has witnessed a quantum leap since the beginning of human evolution, as the present human appearance cues are by far more elaborated than animals' rudimentary cues.

While searching for unique human conceptual institutions that could affect appearance preferences, we hit upon two approaches. On one hand primitive societies kept much of the physical attractiveness determinants exist in nature, and "Thus it can be said without exaggeration that culture in its traditional bidding duplicates the instinctive drive" (Malinowski, 1927, pp. 209-210). In advanced cultures, on the other hand, the ideas of goodness and beauty evolved as a major concept whole describing physical attractiveness. Admittedly, physical goodness and beauty are not so far from the concept of adaptiveness, but still, they are not identical.

Several million years separate between the first protohumins and the modern man. That period has been marked by increasingly rapid social and cultural changes that "most likely have outpaced the evolution of reproductively appropriate behaviors in many cases" (Noonan, 1987, p. 47). Yet, in most of this period hunting and gathering was "the only stable, persistent adaptation human ever achieved" (Symons, 1979, p. 35). Human development has culminated in the last ten thousand years, bringing about more and more complex social structures and intricate motives. Along with the social development,

physical attractiveness cues and preferences have further evolved and abstracted. Although the logic of 'mate value', as well as the mechanism to detect it, has not changed much, social changes along with the introduction of conceptual elements have led to a great variation of value priorities.

Several characteristics have led to divergent evolution of physical attractiveness perception between human being and animals:

1. The evolution of cognitive skills missing in other species, enabled mankind to transfer knowledge through symbols and language.
2. The development of culture, and the expansion of society.

These two factors harbor several implications for physical attractiveness cues:

1. The utilization of newly acquired cognitive skills has accelerated the elaboration, promulgation and acceptance of physical cues throughout human society.
2. The collateral development of culture and cognitive skills has adjusted the rudimentary appearance cues to the needs of the intricate and ever evolving varieties of human society.
3. The societies' growth along with changing mating strategies have led to greater variety of physical attractiveness preferences and further elaborated cues.

The expanding culture was one of the main catalyst of elaborating appearance cues. Culture is unique to humans, because it is "... a store of information and a set of behavior patterns, transmitted by instruction and learning, by example and imitation. The central role in the transmission of culture belongs not to genes but to human symbolic language" (Dobzhansky, 1969, p. 282).

Language was definitely another key aspect in the rapid promulgation of newly created concepts categories: "Human speech is so effective a form of communication that once evolved it gave rise to a system of information transfer to rival the transmission of genes in reproduction" (Williams, 1989, p. 211). Aided by symbolic thinking and language, the expanding culture has elaborated and promulgated features indicating survival, reproduction potential, and further derivatives such as adaptation capacity. Allport (1954) suggested that physical attractiveness is a basis for categorization, an indispensable

aspect of thinking. Perceiving morphological features is not an abstract and subjective capacity, but rather a part of a 'physical reality' that all human share (Gibson, 1979). This reality as well as the ability for categorization is crucial for human existence and well-being.

While developing superior capacities for discerning adaptive qualities in others and transmitting them further, humans have also lost some essential capacities to be found among lower species. Humans are missing important communication means available to many other species: A chemical transmission through Pheromones. As the olfactory sense does not play a significant role in human interaction and information gathering, increasing visual cues as well as growing linguistic capabilities compensated over this human deficiency. In spite of this notion, Macfarlane's (1975) study about infants preference for the smell of their mother's breast-feeding pad over a stranger's, suggested that smell has a greater role in appearance than currently known. The deterioration of this capability, is one example of many features to be replaced and compensated by increasing survival prospects through expanding social structures.

Summarizing this point, human gradual triumph over nature, followed by an increasing social development and changes in mating systems, implied the reduction of the utilization of physical cues for sheer survival, and modify its role in reproduction. Thus:

1. Physical attractiveness cues lost part of their earlier validity and gained new meaning.
2. Decreasing natural selection needed in turn attractiveness cues as the main vehicle of sexual selection.

From a social viewpoint, one important aspect of the shift from primates way of life was the development of the pair bond and family, which meant a change in the relation between men and women from dominance and mating centered relations to longer and more intensive relations based on exchange of properties and sustaining offspring. It is implausible, unfortunately, to trace the breeding system of the protohumanoids, and similarly deducting from contemporary primate is dubious because of the great variety within the primates in addition to the likelihood that they had changed too. It was sug-

gested that at that stage, many systems rather uniformed principle were experimented according to the environment (Fox, 1972). Another aspect of human culture has been the various barriers imposed on free utilization of the appearance cues. In many societies choosing a partner of marriage (as opposed to sex) was determined by family members rather the individual. Despite the manifold cultural barriers, physical appearance cues remained powerful incentive during interactions between same sex member and particularly between opposite sex member.

The gradual development of culture brought about the creation of two aspects which have greatly influenced perceptions of physical attractiveness: moral and aesthetic values. Value system and moral concepts were created and have been used as a part of an abstract set of categories, essential part of human cognitive development. Along cultural development physical attractiveness cues have been linked to moral concepts and attached with value. Consequently these newly created abstracted notions were manipulated in order to fit diverse social ends.

Since early times people have used moral justification to explain outgroup differences in times of struggle, and more extremely inequalities within the group itself. Physical differences between groups, if existed, have been employed to accentuate the general differences and included in the moral framework. Dissimilar people were often depicted as inferior, or demonized (e.g., Dikötter, 1992). In modern times as well, governments occasionally act to increase ethnocentrism through emphasizing ingroup similarity vs. outgroup dissimilarity (e.g., Skinner, 1959).

In the case of indiscernible physical differences, they were often invented or enforced on the subordinate group. Subordinate classes or even slaves who usually had the same ancestry as of the ruling group and therefore lacked visible physical differences from the ruling class, were often forced to wear distinctive custom, shave their heads, or to show some other marks of distinction. Through their different appearance a moral justification could be developed easily. Silverman (1987) argued that whereas racism never would have been adaptive, the capacity for its rationalization is adaptive. In this 'self-deceptive tendency' the group succeeds to maintain its self-image of egalitarianism and loyalty even

in time of attitude change toward a former ally, or during long exploitation of ingroup members.

The second aspect of culture concerns 'beauty'. The concept summarizes physical attractiveness in the philosophical tradition, and denotes physical features which elicit aesthetic experience. In Greece during the fifth century BC, the beauty idea has undergone a singular metamorphosis, changing from a general representation of good to a manifestation of aesthetic values. Although some reverse in the trend has occasionally occurred later, this trend has been emulated throughout the next two thousands years by European philosophy. The Sophists of Athens have narrowed beauty, whether human or other, as 'that which is pleasant to sight and hearing'. Similarly, the Stoics have defined this feature 'that which has fit proportion and alluring color'. Such views could have emerged due to a distinction Socrates has made between beauty of aptness and beauty of proportion. Consequently, a quest for general theory of beauty was initiated, which has yielded a description in terms of proportions, size, arrangement of parts and their interrelations. This general theory was intended for architecture, music, and also for human beauty, in sculpture, painting or reality. Several ideas such as *symmetry and harmony*, that sprang out at that time, can still be found in use nowadays.

Despite the noted philosophical obsession for beauty, only little attention has been directly attached to the beauty of the human body in sexual and mating terms. Furthermore, even when dealing with human phenomena, the word which represented the concept of beauty in early Latin (*pulchrum*) was restricted in its application to women and children (Tatarkiewicz, 1975).

Our primary question is how to interpret the aesthetic experience in social and evolutionary terms. One approach is to view stimuli (people), which are considered by an observer to represent aesthetic values and fit the laws of aesthetics, as an outcome of sociobiological determinants. One indication to this approach is the common association in the past between human beauty and aptness which means in Socrates' words- 'suitability to purpose'. Aptness as such has been promoted in the early Greek philosophy as a basic virtue of beauty. Other

approach deals with the change in affect following an aesthetic experience. The aesthetic experience, the outcome of observing human beauty, whether in art or reality (e.g., being in the presence of people having a high mating value) elicit good feeling. This positive emotion is probably an evolutionary mechanism, formed to enhance through psychological means the attraction to an appropriate stimuli, and the ultimate occurrence of successful mating.

The development of more sophisticated sets of aesthetic values regarding human appearance stemmed also from social needs. The expansion of civilization has made the distinction between the beastly natural part and the transcendental civilized part more graded but also more apparent. Aesthetics as such, can be viewed as a continuous attempt to create a system which would distinguish the divine from the natural, the civilized from the primitive, and the sophisticated from the banal. Thus, we can find along history incessant dichotomization of beauty: The beauty of body vs. beauty of the soul (Isidore of Seville); *bellezza* vs. *grazia*; beauty proper vs. subtlety; primary vs. relative beauty (Hutcheson), and dependent beauty vs. free beauty (Kant).

Moreover, the inability to distinguish often between the physical beauty of a princess and a maid, between a friend and a foe, necessitated more elaborated distinction that would provide moral and social meaning to physical attractiveness. This distinction has been obviously in the interest of the ruling classes to clarify differences between themselves and their subordinates, between ingroup and outgroup, between supporters and dissidents. Concepts such as grace, sublimity, and subtlety, are only few examples of an aesthetic principles for status determinants.

Despite the heated debate in the past over aesthetics, the actual manifestation of human beauty in the plastic arts as well as in the written word has provided people with a very clear idea about the proper and desired physical form. Art has often followed reality rather than dictated it. Social and economical changes led to physical attractiveness preference transformation, to be ultimately represented in art.

## Cultural transmission of physical attractiveness

Humans' recent burst in the last several thousand of years of cultural and social development was too short to change adaptive behaviors or to make a substantial genetic alteration. This notion implies that transformation in physical attractiveness preferences occurred more due to social motives than due to adaptive pressures or as the result of natural selection. The culminating notion regarding physical attractiveness became the amorphous concept of 'beauty'. Likewise, the final stage in the physical attractiveness transmission have evolved to be almost entirely detached from nature, and could have occurred only within human society.

Human fitness has advanced beyond a merely biological fitness through cultural development. Yet, appearance remained the primary symbol of human fitness. Throughout the short human history 'beautiful appearance' has been usually conceived as concerning with life and survival, whereas non-beauty has been associated with extinction and death. Nevertheless, such relations were not always reciprocal as they evolved gradually to the dual link of beauty and goodness to be established later.

By inferring from the animal kingdom, it appears that the relations between human appearance and fitness were initially unilateral. Fitness and ability to survive were the cardinal issue, while appearance was merely their symbolic representation. Thus, human features that were considered as important for survival have been gradually defined and conceptualized as 'good' and 'beautiful', whereas features that endangered the survival of the individual or the race were defined as 'bad' and 'ugly'. The physical trait which is considered as appropriate for survival defined as good, and further as beautiful. In contrast the physical trait which is inappropriate for survival is defined as bad, and further as ugly.

Paraphrasing the classical Greek lyric Sappho, Dion, Berscheid & Walster (1972) suggested that a 'what is beautiful is good' stereotype regarding people prevails in human society. Trivial as it is, their study has generated an immense impact. Subsequent studies have virtually confirmed the rediscovered

manifesto: People's level of perceived physical attractiveness often has a direct impact on their entire life in various domains.

Sappho's note was not an original one either, it stemmed from a cultural milieu that equated goodness with beauty. Plato had established earlier in the *Greater Hippias* the dual link (Plato, 1963): beauty is good and the good is beautiful. Beauty has been arranged in a perfection scale ranging from the individual physical beauty up to the absolute beauty (1963; pp. 562–563). Beauty as such became identical with goodness, as well as happiness and wisdom. When dealing with beauty, Plato obviously meant moral beauty rather than physical one.

Yet, popular notion in classical Greece did not distinguish so sharply between the two. The flourishing fine arts in particular needed tangible objects rather than ideas. Thus, the human physical beauty became one of the main representations of moral beauty. In the following period the distinction was blurred. The physiognomic school established by Aristotle saw in the face a suitable indication of 'mental character' (Aristotle, 1984, p. 1250).

Starting in the 17–18 century, the modern age is characterized by a rapid growth of science and information dissemination never witnessed before (de Solla Price, 1975). In this era of fast changes and incessant novel cues people tended to look for basic physical cues as clear and stable truth.

We contend that the perceptions of physical attractiveness have reached a perpetual level in societies with advanced form of culture. This level means that even if physical attractiveness has already lost its some of its adaptive sense, its sexual value as reflected in preferential perceptions is sustained. This final circular stage has been maintained by the following mechanism:

1. Physical appearance, as a value, has been sustained by various social and cognitive mechanisms, despite its gradual validity loss as a fitness cue.
2. Appearance has become a cue for various traits apart from fitness, creating a circular link with goodness (good is beautiful and beautiful is good).

The mechanism to maintain the prevalent notion of beauty, is based on two features: Cognitive components which consist of various types of

stereotypes and self-fulfilling prophecy, and socio-cultural components which consist of myth and customs. The cognitive components are basically various types of stereotypes:

#### 1. Stereotypes, schemata and personality theory—

Allport's notion of appearance as a base for categorization can be extended to stereotypes too, which for Allport are "an exaggerated belief associated with a category" (1954, p. 191, see also Dion, 1986, pp. 15–16). Humans' need for stereotypes is so strong that McArthur (1982) stated: "if all stereotypes were somehow erased and if all people were equal in every respect but their physical attractiveness, then stereotypes could nevertheless reemerge as a result of the basic cognitive processes of categorization and selective attention" (p. 150).

Once a notion is established several cognitive mechanisms reinforce its usage, till it becomes a cause for its own sake. No wonder that already since the Greek classical era the simplistic but legitimate phrase was repeatedly expressed: "What is beautiful is good". Modern research has demonstrated this notion experimentally: The sociologist Waller (1937) advanced the theory that the association with an attractive person brings about a prestige value, and Sigall & Landy (1973) demonstrated not only the positive effect a beautiful woman has on the rating of her companion, but also the negative effect an ugly one has on the rating of her companion.

How are facial stereotypes concerning attractiveness established? Lewicki (1986) provided some hints regarding the cognitive processes leading to such stereotypes. He showed pictures of female 'patients' accompanied with personality description, which among others described all the females with long hair as 可愛い (kind). The manipulation caused the subjects to unconsciously influence their subsequent judgment, as when they were later introduced with new sets, they were slower to respond 'yes' or 'no' to the question whether long-haired females were kind, than subjects who had not been exposed to the pairing.

2. Self-fulfilling prophecy— Once the stereotype was established, a further mechanism assists in maintaining it. Merton suggested the existence of 'self-fulfilling prophecy' mechanism which help to sustain stereotype, regardless of their validity. Stu-

dies, which examined the schematic processes underlying stereotypes, have suggested that schemata are resistant to changes, because of the tendency to misperceive information that disconfirms such schemata (Schneider, 1973). The self-fulfilling prophecy is a cognitive rather cultural mechanism which perpetuate stereotypes in general and stereotypes concerning physical attractiveness in particular. A case in point is the study of Snyder, Tanke, & Berscheid (1977), who demonstrated the effect of this mechanism even on behavioral patterns. They found that women who engaged in a ten-minute telephone call with men, who were told their partners are either highly attractive or not, behave in more socially desirable ways in first situations, regardless of their actual attractiveness (see also Reingen, Kernan, Gresham, Narashmhan, & Renkainen, 1978). Goldman & Lewis (1977) found that more attractive women were indeed rated higher in social skills by their phone partners than less attractive women. Evidently, the self-fulfilling prophecy ultimately fulfills itself (unless we consider social skill a genetically transmitted trait).

The two predominant sociocultural components are myth and customs:

1. Myth— defined as a 'sacred' narrative, myth have been considered in the anthropological tradition as a justifications of rights, institutions, and sets of relations, whereas sociology has regarded myth as a value-bestowing area of belief. Myth have been a powerful vehicle in carrying forward the beauty stereotype, rehearsing generation after generation the importance of beauty and the evil in ugliness (Synnott, 1989).

2. Customs— defined as expected forms of behavior which derive their legitimacy by reference to tradition, customs bind members of a particular society to conventions and rules they implicitly recognize. Customs also have had a strong impact on the maintenance of physical attractiveness perceptions, by their control on individual or social examination of the validity of transitory and fleeting notions such as 'beauty'.

The way biosocial concepts such as physical attractiveness perceptions have been transmitted remains a fascinating theme. Emlen (1980) argued that even pure culturally transmitted behavioral patterns



are biologically adaptive, and therefore they are not easily distinguished from genetically transmitted patterns. Cavalli-Sforza and Feldman (1981) who have also dealt with cultural transmission stipulated a single *culturgen* called 'skilled', which can be acquired from the unskilled state according to state and genotype of the parents and offspring, respectively.

The theory, which seems to hold the most enticing prospects, is the of theory of *gene-cultural transmission* advanced by Lumsden and Wilson (1981, 1983). The two contended that a member of a given society can transmit cultural values through pure genetic transmission, pure cultural transmission, and gene-cultural transmission. Lumsden and Wilson contended that the gene-culture transmission is the most likely transmission to take place among species with advanced from of culture. In this cultural level the assimilation of '*culturgen*' information is first conducted through epigenetic rules, which are any regularity during epigenesis (the processes of interaction between gene and the environment that ultimately result in new distinctive traits of the organism) "that channels the development of an anatomical, physiological, cognitive, or behavioral traits in particular direction" (Lumsden & Wilson, 1981, p.370) These rules are expressed through sensory screening, perception and further through memory, recall, valuation, and decision making. The entity called mind is assembled by epigenetic rules, and through them handle information processing and decision making. These individual cognition, the outcome of choices of *culturgens*, is than translated into cultural patterns.

The theory of gene-cultural transmission provides the most promising explanation concerning the transmission of physical attractiveness perceptions. One example of its mechanism is facial recognition: The fact that the human face is an object of fixation for newborns prior to any learning (Jirari, 1970; cited in Lumsden & Wilson, 1981) is an indication for its genetical base. Nevertheless, during their first several months, infants rapidly increase their preferences for faces in general, and novel faces in particular as a result of learning and maturation processes. We find the early facial interest especially fascinating because of the gradual shift among human beings from focus on the body to the face.

While among other organism the focal point of fitness is definitely the body, humans often employ the face as the ultimate source of information. This shift is too recent to be explained by genetical and adaptive accounts.

It is very plausible that substantial part of the tendency of physical attractiveness preferences is transmitted genetically. Yet, the cultural dependent transmission (*culturgen* transmission) was the one that enabled the erosion of some already non valid cues (e.g., size of the teeth), as well as the development of numerous new cues. Many studies prior to the Lumsden and Wilson pointed out the uniqueness of human learning and capability for intentional teaching. Through verbal expression, metaphors, symbolization, and categories perceptions of physical attractiveness not only could have easily maintained, but also modified at will.

Another possible direction for the transmission of physical attractiveness perceptions has been through emotions, and especially through sexual emotions. Symons (1979) argued that "Because sexual emotions are closer to the genes that sexual behaviors are, emotions are central to an evolutionary perspective on sexuality" (p. 167). Sexuality is related to physical attractiveness perceptions through the important role of the human body in sexual arousal. These perceptions have been maintained with little variations because human sexual arousal have not changed much during the recent cultural evolution.

In conclusion, human perceptions of physical attractiveness are based on two mechanisms: one common to all organisms and the other unique to the human species. Most of our perceptions are a product of pure evolutionary processes determined to recognize best mate and to enhance inclusive fitness. Nevertheless, due to the evolution of the mind and culture, these perceptions have undergone an intricate development that distinguishes them from the perceptions of other organisms. This transformation implies that human perceptions of physical attractiveness may temporarily comply to socio-cultural rather natural adaptive necessities.

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