CHAPTER 7.

TRUTH IN ADVERTISING, The Evolution of Body Signals.

Section 2.

Scientists seeking to understand the corresponding signals of animals can carry out experiments involving mechanical modifications of an animal's body, such as shortening a widowbird's tail or painting over a gull's red spot. Legal obstacles, moral compunctions, and ethical considerations prevent us from performing such controlled experiments on humans. Also preventing us from understanding human signals are our own strong feelings that cloud our objectivity about them, and the great degree of cultural variation and individually learned variation in both our preferences and our bodies' self-modifications. However, such variation and self-modification can also help us gain understanding by serving as natural experiments, albeit ones lacking experimental controls. At least three sets of human signals seem to me to conform to Kodric-Brown's and Brown's truth-in-advertising model: men's body muscle, facial "beauty" in both sexes, and women's body fat.

Men's body muscle tends to impress women as well as other men. While the extreme muscle development of professional bodybuilders strikes many people as grotesque, many (most?) women find a well-proportioned muscular man more attractive than a scrawny man. Men also use the muscular development of other men as a signal—for example, as a way of quickly assessing whether to get into a fight or to retreat. A typical example involves a magnificently muscular instructor named Andy at the gymnasium where my wife and I exercise. Whenever Andy lifts weights, the eyes of all the women and men in the gym are on him. When Andy explains to a customer how to use one of the gym's exercise machines, he begins by demonstrating the machine's operation himself while asking the customer to place a hand on the relevant muscle on Andy's body so that the customer can understand the correct motion. Undoubtedly, this means of explanation is pedagogically useful, but I am sure that Andy also enjoys the overwhelming impression that he leaves.

At least in traditional societies based on human muscle power rather than on machine power, muscles are a truthful signal of male quality, like a deer's antlers. On the one hand, muscles enable men to gather resources such as food, to construct resources such as houses, and to defeat rival men. In fact, muscles play a much larger role in a traditional man's life than do antlers in the life of a deer, which uses antlers only in fighting. On the other hand, men with other good qualities are better able to acquire all the protein required to grow and maintain big muscles. One can fake one's age by dyeing one's hair, but one cannot fake big muscles. Naturally, men did not evolve muscles solely to impress other men and women, in the way that male bowerbirds evolved a golden crest solely as a signal to impress other bowerbirds. Instead, muscles evolved to perform functions, and men and women then evolved or learned to respond to muscles as a truthful signal.

A beautiful face may be another truthful signal, although the underlying reason is not as transparent as in the case of muscles. If you stop to think about it, it may seem absurd that our sexual and social attractiveness depends on facial beauty to such an inordinate degree. One might reason that beauty says nothing about good genes, parent-ing qualities, or food-gathering skills. However, the face is the part of the body most sensitive to the ravages of age, disease, and injury. Especially in traditional societies, individuals with scarred or misshapen faces may thereby be advertising their proneness to disfiguring infections, inability to take care of themselves, or burden of parasitic worms. A beautiful face was thus a truthful signal of good health that could not be faked until twentieth-century plastic surgeons perfected facelifts.

Our remaining candidate for a truthful signal is women's body fat. Lactation and child care are a big energy drain on a mother, and lactation tends to fail in an undernourished mother. In traditional societies before the advent of infant formulas and before the domestication of milk-producing hoofed animals, a mother's lactational failure would have been fatal to her infant. Hence a woman's body fat would be a truthful signal to a man that she was capable of rearing his child. Naturally, men should prefer the correct amount of fat: too little could be a harbinger of lactational failure, but too much could signal difficulties in walking, poor food-gathering ability, or early death from diabetes.

Perhaps because fat would be difficult to discern if it were spread uniformly over the body, women's bodies have evolved with fat concentrated in certain parts that are readily visible and assessed, although the anatomical location of those fat deposits varies somewhat among human populations. Women of all populations tend to accumulate fat in the breasts and hips, to a degree that varies geographically. Women of the San population native to southern Africa (the so-called Bushmen and Hottentots) and women of the Andaman Islands in the Bay of Bengal accumulate fat in the buttocks, producing the condition known as steatopygia. Men throughout the world tend to be interested in women's breasts, hips, and buttocks, giving rise in modern societies to yet another surgical method of fake signals, breast enhancement. Of course, one can object that some individual men are less interested than other men in these signs of female nutritional status, and that the relative popularity of skinny and plump fashion models fluctuates from year to year as fads. Nevertheless, the overall trend in male interest is clear.

Suppose one were again playing God or Darwin and deciding where on a woman's body to concentrate body fat as a visible signal. The arms and legs would be excluded because of the resulting extra load on them during walking or use of the arms. That still leaves many parts of the torso where fat could be safely concentrated without impeding movement, and in fact I just mentioned that women of various populations have evolved three different signaling areas on the torso. Nevertheless, one has to ask whether the evolutionary choice of signaling area is completely arbitrary, and why there are no populations of women with other signaling locations, such as the belly or the middle of the back. Paired fat deposits on the belly would seem to create no more difficulties for locomotion than do our actual paired deposits in the breasts and buttocks. It is curious, however, that women of all populations have evolved fat deposition in the breasts, the organs whose lactational performance men may be attempting to assess by fat deposit signals. Hence some scientists have suggested that large fatty breasts are not only an honest signal of good overall nutrition but also a deceptive specific signal of high milk-producing ability (deceptive because milk is actually secreted by breast glandular tissue rather than by breast fat). Similarly, it has been suggested that fat deposition in the hips of women worldwide is also both an honest signal of good health and a deceptive specific signal suggesting a wide birth canal (deceptive because a truly wide birth canal would minimize the risk of birth traumas but mere fat hips would not).

At this point, I have to anticipate several objections to my assumption that the sexual ornamentation of women's bodies could have any evolutionary significance. Whatever the interpretation, it is of course a fact that women's bodies do possess structures functioning as sexual signals, and that men tend to be especially interested in those particular parts of women's bodies. In those respects women resemble females of other primate species living in troops that contain many adult males and adult females. Like humans, chimpanzees and baboons and macaques live in troops and have sexually ornamented females (as well as males). By contrast, female gibbons and the females of other primate species that live as solitary male-female pairs bear little or no sexual ornamentation. This correlation suggests that if and only if females compete intensively with other females for males' attention—for example, because multiple males and females encounter each other daily in the same troop—then females tend to evolve sexual ornamentation in an ongoing evolutionary contest to be more attractive. Females who do not have to compete on such a regular basis have less need of expensive body ornamentation.

In most animal species (including humans) the evolutionary significance of male sexual ornamentation is undisputed, because males surely compete for females. However, scientists have raised three objections to the interpretation that women compete for men and have evolved bodily ornaments for that purpose. First, in traditional societies at least 95 percent of women marry. This statistic seems to suggest that virtually any woman can get a husband, and that women have no need to compete. As one woman biologist expressed it to me, "Every garbage can has a lid, and there is usually a bad-looking man for every bad-looking woman."

But that interpretation is belied by all the effort that women consciously put into decoration and surgical modification of their bodies so as to be attractive. In fact, men vary greatly in their genes, in the resources that they control, in their parenting qualities, and in their devotion to their wives. Although virtually any woman can get some man to marry her, only a few women can succeed in getting one of the few high-quality men, for whom women must compete intensely. Every woman knows that, even though some male scientists evidently don't.

A second objection notes that men in traditional societies had no opportunity to choose their spouse, whether on the basis of sexual ornamentation or any other quality. Instead, marriages were arranged by clan relatives, who did the choosing, often with the motive of cementing political alliances. In reality, though, bride prices in traditional societies, such as the New Guinea societies where I work, vary according to a woman's desirability, the woman's health and probable mothering qualities being important considerations. That is, although a bridegroom's views about his bride's sex appeal may be ignored, his relatives who actually select the bride do not ignore their own views. In addition, men certainly consider a woman's sex appeal in selecting partners for extramarital sex, which is likely to account for a higher proportion of babies in traditional societies (where husbands don't get to follow their sexual preferences in selecting their wives) than in modern societies. Furthermore, remarriage following divorce or the death of the first spouse is very common in traditional societies, and men in those societies have more freedom in selecting their second spouse.

The remaining objection notes that culturally influenced beauty standards vary with time, and that individual men within the same society differ in their tastes. Skinny women may be out this year but in next year, and some men prefer skinny women every year. However, that fact is no more than noise slightly complicating but not invalidating the main conclusion: that men at all places and times have on the average preferred well-nourished women with beautiful faces. We have seen that several classes of human sexual signals—men's muscles, facial beauty, and women's body fat concentrated in certain places—apparently conform to the truth-in-advertising model. However, as I mentioned in discussing animals' signals, different signals may conform to different models. That's also true of humans. For example, the pubic and auxiliary hair that both men and women have evolved to grow in adolescence is a reliable but wholly arbitrary signal of attainment of reproductive maturity. Hair in those locations differs from muscles, beautiful faces, and body fat in that it carries no deeper message. It costs little to grow, and it makes no direct contribution to survival or to nursing babies. Poor nutrition may leave you with a scrawny body and disfigured face, but it rarely causes your pubic hair to fall out. Even weak ugly men and skinny ugly women sport auxiliary hair. Men's beards, body hair, and low-pitched voices as signals of adolescence, and men's and women's hair whitening as a signal of age, seem equally devoid of inner meaning. Like the red spot on a gull's bill and many other animal signals, these human signals are cheap and wholly arbitrary—many other signals can be imagined that would serve equally well.