

Biological Basis of Sex Appeal
by
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Part One of a Two Part Discussion
(<http://www.wsu.edu:8080/~taflinge/biosex1.html#desire>)

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REPRODUCTION

Nature has designed life, from the smallest microbe to the largest whale, to have one basic purpose. That purpose is to reproduce. Whatever else an organism does, reproduction is its basic goal. All else, from dolphins frolicking to the Pyramids, is gravy.

You may question this. So let's ask some questions:

"What do you mean by 'reproduction'?"

Basically, it's life making copies of itself. An organism is a combination of elements such as carbon, iron, hydrogen, potassium, sodium, etc.. How the elements combine into molecules, and how those molecules are arranged, determines what the organism is, whether a bacterium, bedbug or buffalo. The instructions for this arrangement are in the organism's genes. They provide the guidelines for everything from eye color (or even if there are eyes and if so how many) to the hard-wired instincts on how to react to stimuli. To make a copy of itself, the organism must create another organism that contains the same genes. This can be done asexually or sexually, but that's a topic for later in the chapter.

"But surely the basic purpose of life is to stay alive. Right?"

On the surface, it may appear so. Certainly most living things go out of their way to stay that way. They devote a lot of time and attention to self-preservation. However, what basic reason is there for staying alive? If nature just wanted life, everything could be immortal -- just do it once and leave it at that. But nothing is immortal; everything eventually wears out (or more accurately for life, dies). For life to continue, it must make fresh copies of itself. The purpose of self-preservation is to stay alive long enough to make those fresh copies. If an individual's death contributes to that individual's reproduction, it dies. For example, the male preying

mantis is eaten by the female while inseminating her, providing her with nourishment she needs to produce and lay her eggs. However, in his sacrifice he passes on that part of his life that's important to nature -- his genes.

"What about all those other things organisms do? Eating, sleeping, building, travelling, etc.?"

Almost everything an organism does enhances its ability to stay alive, at least long enough to reproduce. An extreme example is the Pacific salmon, which devotes years to staying alive. It then engages in "kamikaze reproduction," (technically, semelparity) literally committing suicide in its efforts to reproduce. (Daly, 1978) All of its activities, from eating to dodging predators to travelling thousands of miles, aim at that final, fatal return to its original stream to spawn.

Other things that an organism does are attempts to increase its chances at reproducing. For example, among animals that reproduce sexually, males compete with each other to gain access to females. The competitions may be physical, such as butting heads, or psychological, by having the loudest roar. In any case, the competition is to get the status or prove the fitness that will entice the female to choose the winner.

"Well, that may apply to other animals, but how about us humans? We paint pictures, watch television, go jogging. What possible effect could these have on reproduction?"

An excellent question. The answer is very little. And what little effect there is subtle. Here we turn from the biological to the sociological basis of behavior. A complex organism can apprehend and manipulate its environment to its own advantage. Often it does this through cooperation with other organisms. Humans, the ultimate in environmental manipulators, do more things, with more others, to more effect, than any other creatures on earth. You may watch television to relax; relaxation can benefit your health; the healthier you are the longer you may live; the longer you live the greater your chance to reproduce. Do humans think this way when they sit down to watch Gilligan's Island? Of course not. But the body might be saying, "Take a strain off," and, with many ways to relax, television may be the choice. Painting pictures may be relaxing, or provide money to buy food and shelter or prove fitness to a potential mate. Looking at the pictures may be soothing, or provide a more relaxing atmosphere, or be an investment. Jogging can improve health, and perhaps provide opportunities to meet healthy potential mates.

Humans are as much biological creatures as aphids or elephants. And, although humans have a conscious overlay of intelligence and culture, deep down in the subconscious, we have the same drive to reproduce our kind.

REPRODUCTION -- HOW DOES IT WORK?

The earth teems with thousands of species of creatures, all doing their best to continue teeming. As discussed above, a species continues by reproducing, by making copies of the members in that species. Species that don't reproduce, for whatever reason, don't survive.

Samuel Butler once said, "The hen is the egg's way of making another egg." There is a much truth in this adage. In the natural world, the egg's vehicle, be it fish, fowl or flower, doesn't matter. What does matter is that the vehicle gets the egg fertilized, hatched, and far enough along in development to have a chance of producing another egg. The egg contains the hen's genes, which combine with the rooster's genes. The genes create from the raw materials of organic life another chicken. That chicken then has another egg. It is not the egg, but the genetic material that the egg nourishes and brings to fruition that is important. It is the genes that must be passed on if a species is not to become extinct.

In addition, the egg wants to have another egg as much as possible like itself. A species is a collection of genetically similar individuals. Since it's the genetic material, the genes, that makes each egg an individual member of a species, the egg wants to pass its own genes on to the next generation.

Of course, to nature the individual isn't important; what is important is the species to which the individual belongs. An examination of nature shows this to be true. Herbivores that are susceptible to predation often herd in large numbers. Fish and insects may eggs in the thousands and millions. Plants produce seeds and spores in the millions and billions. In this way, although individual members of a species may fall to predators or bad luck, the species is safe from extinction.

However, this does not mean that the individual doesn't care about reproduction. In fact, it is the reason for the individual's existence. It isn't the species that carries the genes, it's the individuals in that species that do. This desire to pass on its own genes is why an individual is so concerned with self-preservation. It must personally survive to pass on its genes.

An organism wants to pass its own genes on to offspring. If it didn't want to, it wouldn't care if it reproduced or not. Enough of these individuals, and the species dies out. However, that event is unlikely. Without an instinct to pass on its own genes that individual doesn't, and its lack of an instinct to reproduce dies with it. Those individuals that have the instinct are the ones that continue the species, and therefore breed the instinct into future generations.

Asexual Reproduction

Some may think that reproduction is synonymous with sex. After all, most of the species we see (or pay any attention to) reproduce that way. However, asexual reproduction is also very common.

Asexual reproduction is the replication of an organism. The organism can fission, bud, or clone itself. Fissioning is the organism splitting itself in two parts, each part containing the same genes. For example, an amoeba fissions, dividing itself into two individuals, each containing the same genes. The hydra, a sea animal that looks like a plant, buds off pieces of itself that grow into new hydras, all with the same genes. The honeybee can reproduce through parthenogenesis, developing new bees containing only the queen's genetic material. [\(3\)](#)

There are advantages to asexual reproduction. First, genes rarely mutate. Thus, a genetically successful (that is, adapted to its niche) organism doesn't develop mutations that may lessen

its success. Second, it devotes all its reproductive energy to creating offspring. No time or energy has to be devoted to the finding and courting a mate. (Daly, 1983)

There are, of course, disadvantages to asexual reproduction. If there weren't, there would be no point in sex. However, obviously there is a point to sex -- it mitigates asexuality's disadvantages. I will discuss this below.

Sexual Reproduction

Much of terrestrial reproduction is through bipolar sexual activity, the mating of male and female. This way each sex passes on its share of genes to any resulting offspring.

In sexual reproduction, each sex contributes one half of the genes that go into creating a new organism. The male contributes his half in sperm, basically a small packet of genes with a tail that lets it swim to the female's contribution. She contributes an egg that contains her genes and a quantity of food for the developing offspring. The sperm and egg combine through sexual intercourse. (Lloyd, 1980; Maynard Smith, 1971, 1978)

The advantages of sexual over asexual reproduction are many. First, of course, is that a sexual species can evolve faster than an asexual one. (Fisher, 1958; Muller, 1932) A sexual species combines genes randomly. Thus, each offspring is a unique individual, a combination of two other individuals. This individuality may include a new variation of some aspect. This is a mutation. If niche conditions change (see above under SELF-PRESERVATION), this new variation (or some other) may be more successful in exploiting the new conditions.

Interestingly, sexual species can also resist evolving. (Muller, 1932) A mutation in an asexual species passes on to any descendant; there isn't any choice. But in a sexual species a mutation can be "edited" out, since half of the maternal or paternal genes aren't passed on. If the mutation isn't passed on, it disappears. (Daly, 1983)

However, there is a more substantial difference between asexual and sexual reproduction than what each gender contributes, whether it's a sperm or an egg, or its value in evolutionary terms. There is the "cost of sex."

COST OF SEX

In terms of time and energy, the male expends virtually nothing in sexual contact compared to the female (Trivers 1972; Dewsbury, 1981): a few tens to a few thousand calories per contact, depending on body size, and from as low as 2-3 seconds (the blue whale) to a few hours (the giant tree sloth) (both figures are time from intromission to ejaculation; we won't count foreplay).[\(4\)](#)

Females, on the other hand, have a far greater physical, physiological and temporal stake in the production of offspring, particularly among the mammals (Trivers 1972). In mammals the female must carry the fetus within her body, nourishing it with her own body tissues. She must withstand the not insubstantial rigors of birth. She must then continue to nourish and protect the offspring until it can support itself, often to puberty. All this can take a lot of time, from weeks to years, and burn millions of calories.[\(5\)](#)

The difference in the amount of time and energy males and females must devote to reproduction leads to a difference in how they regard sex. (Bell, 1980; Calow, 1979; Daly, 1978, 1983; Ghiselin, 1974) This in turn leads to a difference in their reproductive strategies

Reproductive Strategies

Nature designs reproductive strategies to produce the strongest, smartest, most viable organisms (Daly 1983). They in turn reproduce and continue the chain of life. Continuing the chicken and egg analogy, to reproduce the genes in the female's egg combine with the genes in the male's sperm. This is done through sexual intercourse. Since this is so, individual females and males of each specie must want sexual intercourse with each other. Without such desire, nature's reproductive strategy of passing genes from one generation to another might fail. Thus, sexual desire, very simplistically, is built in to every organism.

In addition, the egg wants (in a metaphorical sense) to combine the best possible genes to improve the next chicken's (and therefore the next egg's) chances at survival and reproduction. Animals' reproductive strategies revolve around these two needs -- mating, and mating with the best possible partner.

Sexual desire

Sexual desire is an instinctive reaction in animals. If the desire isn't there, neither is the possibility of reproduction. If it is there, it is based on an individual's perception of a suitable mate. That perception usually is a set of criteria that the opposite sex must meet, or at least approximate. An individual regards a member of the opposite gender that meets or exceeds (at least, within the available pool of possibilities) those criteria as being superior to others of that gender. It is therefore the individual that provides the chance for the highest quality offspring with the best chance of survival. When the criteria are not met, sexual desire does not occur.

The criteria can include coming into heat, showing strength, clearly being healthy, providing a safe environment for offspring, being readily available as a sexual partner, some other factor or factors, or any combination. It all depends on what the organism's reproductive strategy deems important. (Please always bear in mind that, in all but humans (as far as we know) there is no conscious element to reproductive strategy -- instinctive reaction guides it.)

Such criteria must, of course, be reciprocal. Simply because she meets his criteria does not mean he meets her's, and vice versa. It is when both partners' criteria overlap enough for both partners to accept them that mating takes place.

Again, the chicken and the egg: the hen's criteria for sexual desire are those that would allow the best combination of genes. If the rooster is good enough to satisfy the criteria, it is superior to one that does not meet them. Thus, its qualities are those that should combine with her's and pass on, and he's the rooster with which she mates.

Because of the costs of sex, the criteria a potential mate must meet or approximate differ greatly, depending on whether the animal applying them is male or female.

One aspect of any reproductive strategy that I should mention now is that of numbers. In numbers there is chance: chance for survival, chance for superiority, chance for further offspring. The more offspring any species can produce, the better that species' chances of survival and future.

This results in each organism trying to produce as many offspring as possible as long as possible. It is at this point we run into the major difference between male and female attitudes towards sex.

Males

Most males are promiscuous (Bateman 1948; Leakey, 1978).⁽⁶⁾ Genetically, it is the most practical course of action. The more females with which a male mates, the greater number of offspring containing his genes are possible. In addition, the cost of sex in terms of time and energy is considerably lower for the male than the female. It is therefore in the male's (and thus the male's genes') best interest for the male to mate with as many females as he can.

Thus, a male's criteria that a female should satisfy can be quite simple: 1) the female must be healthy to carry the fetus to term and support it after birth until it reaches self-sufficiency or puberty; 2) she must be young enough for greater viability, health, and ability to support offspring long enough after birth for it to reach self-sufficiency or puberty; 3) impregnable condition. As is apparent, all of the above criteria are physical and usually obvious to the male's eyes or nose. In other words, a male can quickly see and/or smell whether a female fulfills his criteria. For example, a female cockroach releases pheromones (a chemical scent) when she's sexually ready that draws males from everywhere. The female chimpanzee's sexual organs swell and redden when she's receptive, and the males line up in hopes of mating with her. Nothing else is important -- to the male.

In addition, the sex act is of paramount importance to the male; it is how he impregnates the female. She must therefore be receptive to him. After that, his concern is having more females to impregnate (Bateman 1948). He may try to ensure that his already mated females don't mate with any other males, but the more successful he is with the former, the less he probably worries about (if those are the words for something he doesn't think about at all) the latter.

Females

In most species, females bear the brunt of the cost of sex in both time and energy: up to millions of calories and years of time. Among mammals, she must not only produce the young, she must rear them to the point of self-sufficiency. Thus, unlike the male, she doesn't have the choice of promiscuity, of creating as many offspring as possible as quickly as possible; she cannot abandon offspring as soon as they are born, or her genes die with the infant (Daly 1983).

All this means she must be highly selective in her choice of mates if she wishes to produce the highest quality offspring in her reproductive lifetime. If she selects just any male that comes along, she could waste all the time and energy that pregnancy and rearing require on a possibly weak or nonviable offspring. Her criteria thus are aimed at getting the best

possible male. What is important is the quality of genes he brings and the help, if any, she will have while carrying, bearing and rearing her young.

Her criteria, therefore, are more complex than the male's. Not only must he be physically acceptable, but should satisfy other factors that may contribute to her and her offspring's welfare. These can include leadership, status within a group, and fighting skill. It could even include the male's ability to put up with handicaps, such as the peacock's conspicuous and undoubtedly unwieldy tail. (Zahavi, 1975, 1977) The sex act, and his participation, being so brief, doesn't have to be of any great interest to her. He need merely be able to achieve orgasm.

These two seemingly contradictory attitudes toward reproduction, promiscuity in the male and selectivity in the female, must be reconciled. If they aren't, the species will die out due to lack of offspring. Species, therefore, devise reproductive strategies that bring males and females together.

Strategies are many and varied. They can include singing, displays of physical characteristics, dancing, pheromone release, flashing lights, or combat. In most species, it is the male that does something to attract the female's attention. There is a reason for that.

The first aspect of virtually any strategy is that the female makes the choice when it comes to mating. She has such a high biological stake in the outcome of mating that she must select the best possible male. If he does the choosing, a species could waste its reproductive strength, which resides in the female and the time and energy she puts in, on nonviable young. Since it is sound reproductive strategy for her to be the arbiter, he can only apply for permission to mate and wait for her decision.

How the male applies for permission to mate is a major part of any strategy. The application is to attract her attention and convince her that he's the male she should choose because he fulfills her criteria, whatever they might be. For example, male lightning bugs flash into the night, hoping a female will respond. The peacock opens one of the most beautiful displays in nature, a monster fan of iridescent tail feathers. A male bower bird constructs an elaborate well-decorated mating bower of grass, then dances while she looks on. She also checks out the bowers of other males. She mates with the one she thinks best, while the losing males try to attract another female.

Among mammals, the same strategy applies. He applies, she decides. His application is often by challenging other males to mating rights: elk bellow; rams butt heads; moose wrestle using their huge palmate antlers; elephant seals fight, sometimes to the death.

These psychological or physical battles are to win her approval by winning the combat. For example, the African lion bases its reproductive strategy on combat to take over a pride and thus gain a harem. Male lions fight each other to prove their strength, strength to pass on to offspring. The strongest lion wins the right to reproduce. When a new lion takes over a pride, he kills cubs sired by the loser, ensuring two results. First, the pride wastes no strength and resources on raising inferior cubs. Second, the lioness goes into estrus and becomes impregnable again. Female lions will mate only with the winners of the combat. They deem

the winner as the one most likely to sire strong offspring that have the best chance of survival.

However, if she still doesn't approve, she can walk away, or give him a quick (and painful) swat to let him know she's not interested.

In the wolf pack, only the alpha male and female reproduce. The alphas are the leaders of their pack. They have shown through combat and leadership that they are the strongest and smartest of the wolves in the pack. The rest of the pack work to raise the alphas' pups. When either of the alphas fails, the male through being defeated in a fight, the female in producing poor pups or getting too old, new alphas replace them and the pack raises the new alphas' pups.

Not only predatory animals use the combat strategy for determining the best male to sire young. Among most herbivores, such as deer, elk, gnus, sheep, horses and cattle, the males battle to gain the right to reproduce (this is, of course, in the wild). Once a male proves his dominance, the females will mate with him, as many females as he can keep with him and away from other males.

The female strategy is to wait, watch, and choose. It is rare for the female to pursue the male. Exceptions appear in those species in which the male is the nurturing parent rather than the female. In such species, like the phalarope and the seahorse, the male devotes the time and energy to the rearing of young. (Daly, 1983) He thus becomes a "resource" for the female in propagating her genes, as, in most species, the female is a resource for the male. Thus, the female fights off other females until she lays her eggs, then goes to find another mate.

However, it is still the female that chooses the male, not vice versa. (Trivers, 1972) Female choice is still the controlling factor in reproductive strategy.

What is clear is that female behavior is not for the convenience of the male. On the contrary, males must adapt their reproductive strategies to female behavior. (Daly, 1983)

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3 The honeybee can also reproduce sexually by fertilizing the eggs, combining male and female genes to create genetically different offspring. However, it can develop unfertilized eggs into new, genetically identical, bees.

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4 Yes, foreplay. Not only humans indulge. The humpback whale will often indulge in foreplay for several hours before actually mating. (Attenborough, 1990).

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5 There are, of course, exceptions to this rule. Occasionally it is the male that devotes his time, energy and resources to the incubating and rearing of young. Such species include the

phalarope (a bird) and seahorses.

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6 There are, of course, exceptions. Canadian geese are monogamous, as are eagles, dik dik antelope, and gibbons. However, species that are monogamous often live in situations or have a life-style that dictates monogamy. For example, gibbons are notoriously anti-social -- they don't like to associate with each other (which makes sense when one considers the amount of forest each requires for support). Thus, it makes sense for them to be monogamous -- there has to be at least one other gibbon they are willing to associate with, or the species dies out. It's a good thing they pick one of the opposite sex.

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Part Two of a Two Part Discussion

HUMAN REPRODUCTION

All of the information in [Part One](#) applies to human reproductive strategy. Men are basically promiscuous; women are basically selective. Male criteria are physical; female criteria are physical and social. Men compete with each other for women's attention; women select those men who win competitions. There are, however, major modifying factors in human strategy that make humans unique among the animals. The first is the human mind, which I will discuss later. The second is the human anatomy, equally unique, which I will discuss now.

Anatomy and Sex

Human anatomy differs rather radically from that of other mammals, in particular other primates. This difference has a major effect on how humans approach sex.

The biology, anatomy and physiology of most mammalian life on Earth lead to an instinctive approach. The biological imperatives guide male and female sexual behavior, and anatomy does nothing to impede that behavior. Note I say "most". There is one notable exception: human beings.

Typical land mammalian anatomical structure enhances rather than impedes reproduction. [\(8\)](#) For example, let's examine a typical female land mammal. She walks on all fours, her rear legs at right angles to her spine. Her vagina is under her tail and flush to the surface.

What these factors mean is significant. First, the male mounts from the rear for sexual intercourse. He approaches from the rear, places his weight on her back, and engages. The technical term for this is lordosis. (Beach, 1968; Morgan, 1972)

The position of her limbs makes it possible for her to support his weight during intercourse without a lot of effort. Her limbs don't impede intercourse. In addition, if she is not ready she can simply walk away.

The effort she must expend in intercourse is also reduced (remember how important her effort is biologically). She need only stand still and let him do the work.

Of course, animals don't engage in mating all the time. So for mammals, the vagina, a very delicate organ, is well protected by the tail or by the hip and leg structure. Nonetheless, during mating it is easily accessible.

Some of you may be thinking, "What has this to do with humans? Humans aren't built anything at all like deer or cows or horses. What about primates, which humans are like?"

Very well, what are primates like? Well, very much like deer or cows or horses. They primarily walk on all fours, males mount from the rear, her limbs can easily take his weight during intercourse and have great lateral flexibility. Her vagina is near the tail bone and on the surface, easily accessible to the male when she presents her posterior. The position of her limbs and a callosity on her rump also protect it when she sits. Thus, technique hasn't changed from deer to chimp. [\(9\)](#)

It is when we begin to examine human sexual anatomy that problems become apparent. The human body seems designed to impede rather than enhance intercourse.

Most of the differences between non-human and human anatomy that are important to this discussion are in the female structure. First, and most obvious, is the human upright stance. Only humans normally walk on their hind legs rather than on all fours and have the hip and leg structures that make it easy and natural. For males, this causes little in the way of problems since he's convex rather than concave.

For females, however, it is a major problem. As her legs rotated about her hips, moving from a right angle to in-line with her spine, her vaginal opening traveled farther and farther forward. Also, instead of being surface mounted, like other land mammals, her vagina retreated into her body with a covering of extra flesh. (Hamburg, 1974)

There were not only changes in the position of her vagina. Her legs changed radically as well from those of all other primates. First, her legs got closer and closer together. Second, her hip joints reformed to reduce lateral flexibility and stabilize her upright posture. Finally, instead of the spindly, bowed leg structure that all other primates had and have, her legs turned into long, thick, heavy, muscular columns.

A last major change in her anatomy was her buttocks. Unlike any other creature on earth, including the primates, humans have big buttocks, sometimes so large they form a shelf in the back. And it is almost axiomatic that no matter the race or culture, the female will have a bigger behind than the male.

At this point you may very well be asking yourself, "So what? So women have large buttocks -- so do men. So women walk upright -- so do men. What's the big deal?"

It's a good question. The answer is that as the female primate changed into the female human, her new body made sex difficult. Her vagina was now not easily accessible but difficult to get to. It moved far forward, got a covering layer of flesh, and became hidden between two heavy columns of bone and muscle.

"Nonsense!" you reply. "Where do all these babies come from, if sex is impossible? Men and women do get together, you know."

Indeed, they do, but not the way almost any other primate or land mammal does. Remember, all these changes in female anatomy occurred before humans became human. Let's examine what may have happened long ago and far away.

Ms. Primate, decked out in her new body, bounds up to a likely looking male and presents her posterior -- after all, land mammals mate from the rear. He, of course, responds. However, there is a new and frustrating development -- he can't reach. Equipped as he is with a primate penis, which is small, [\(10\)](#) her vagina is too far forward, her legs too close together, and her buttocks hold him too far away.

"Then the human race died out," you sneer sarcastically, knowing such is not the case. Obviously the human race did not die out. To avoid this fate, the male primate had two choices: evolve physically to compensate for her changes, or change his technique. In fact, the male did both.

First, the proto-human male evolved an over-sized penis, the largest in the primate world, and one of the largest in comparison to body size in nature. [\(11\)](#) However, since this evolution in male structure was in response to changes in the female, he was always a little behind (no pun intended).

It was his solution to this problem that has had a great influence on human male and female attitudes towards sex -- he changed his technique.

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To understand the significance of his changing his technique, we must examine some aspects of animal behavior, in particular aggression and appeasement. First, some definitions: what do I mean by aggression and appeasement. The modern definition of aggression is a cultural, rather than a biological one. Today, "aggression" means the deliberate infliction of harm on someone or something else. However, biological aggression is an organism's assertion of itself to gain survival or reproductive rights. Aggression can result in the infliction of harm on something else, but not necessarily. For example, the baboon male can assert itself simply by flashing its eyelids and yawning. He doesn't have to move at all, and no other baboon suffers the slightest physical harm (it may cause a certain loss of self-esteem for the other baboon, but nothing more). Only in extreme cases, such as the vicious mating fights of elephant seals (LeBoeuf, 1974), does physical chastisement that causes great injury to other members of the group occur.

Every animal, if it is to ensure that its genes get passed on, must have a degree of aggression. It must assert itself as the most deserving of procreation; animals that do not assert themselves end themselves.

However, the aggression towards other members of an animal's own species is usually limited. For example, the males' mating battles may appear vicious and aimed at killing each other. True, the fight may severely injure one or both, and one or both may later die of his wounds or exhaustion. However, one actually killing the other during combat is rare.

In most instances, when one of the contenders has had enough, he will run away or make an appeasement signal. If he runs, the winner may chase him for a short distance, and then the battle is forgotten -- there are no grudges held (unless, of course, the loser comes back again and again, in which case the winner delivers a more definite lesson). If the loser makes an appeasement signal, it may be exposing the throat, lying down on his back, or otherwise exposing himself to a killing stroke from the winner. (Morgan, 1972) However, the killing stroke doesn't come -- the winner accepts the loser's capitulation and stops attacking.

The limits on aggression are instinctive and immediate; a winner does not continue an attack after the loser submits or runs away, does not carry a grudge, does not try to gain revenge. Intraspecies aggression is to establish status, breeding rights, or to chastise improper behavior (that which may endanger the species). Once an animal submits, the aggressor stops the attack and backs off; he or she has no choice -- an animal cannot fight instinct.

Such behavior is vital if a species is to avoid killing itself off. It is particularly important in those species that nature has equipped with deadly weapons such as long, pointy teeth and claws.

Now let's examine what all this means to Ms. and Mr. Protohuman. They, like other animals, must have had a degree of aggression to survive. Those that were most capable of wresting a living from the environment and procreating were the most successful.

Protohumans were undoubtedly as social as primates are today. (Leakey, 1977) Thus, they probably used aggression on each other to establish status, breeding rights, and to chastise.

The protohuman was small, perhaps no more than three and a half to four feet tall, (Leakey, 1977) and lacked much in the way of natural weapons. Thus, although they must have had aggression and appeasement signals like all animals, they were probably rather weak, strong signals only needed when one animal can easily kill another. Nonetheless, they must have been strong enough to avoid having one kill another through ignoring appeasement.

"What does all this have to do with the male changing his technique?" you may ask. Let's get back to the scenario and see what happens next.

She has presented her posterior and he tries to respond. However, her newly arranged and pneumatic body prevents his success. Now, what happens if some bright boy comes up with a flash of brilliance: "If I can't reach from this side, how about if I try from the other?" Carrying out his brilliant plan, he flips her on her back, spreads her legs, and tries again.

This is fine for him. However, what is her reaction? Remember, up to this time, all mating has been from the rear. For him to flip her on her back and get on top of her must mean, to her, that he is attacking, not mating. On her back her soft belly is unprotected, she can't run, her legs are unavailable since he's between them. In other words, she's scared out of her little protohuman mind.

She has two choices: fight back, or submit. If she fights back, he fights as well. Since he is probably bigger and stronger, if only slightly, he will probably win. She will thus fall back on choice two -- she submits and makes appeasement signals.

Now is when things get weird. She submits, making appropriate appeasement signals. He, following instinct triggered by her signals, immediately stops what he is doing and backs away. It doesn't matter that he wasn't actually attacking. What does matter is she made appeasement signals and he must back away.

She, of course, is bewildered. She was all set for the undoubtedly enjoyable activity of sex. Suddenly, he attacks her. What's the matter with him?

He's even more confused. She came up obviously prepared for fun. He was of like mind. However, he has difficulties because of her changed anatomy that he hasn't adapted to yet. He came up with the perfect solution, and she immediately tried to fight him off. What's the matter with her? Then, when she stopped fighting, he instantly lost interest. What's the matter with him? What's the matter with this whole business?

However, this was the story of Mr. A. What about Mr. B? Same scenario, but when she makes appeasement signals, Mr. B reacts. However, unlike Mr. A, he does not back off, but continues until orgasm. Why? His instinctual reaction to appeasement signals is weak; they do not instantly turn off his actions. The upshot is Mr. A and his genes die out; Mr. B and his genes continue. Enough Mr. Bs and the instinct for stopping aggressive behavior when opponents surrender is bred out of the species. Aggression is also bred into sex. This is not that unusual. For example, "The female blue heron hears the love screech of the male. She picks her heart's desire and settles on a branch nearby. The male immediately begins to court her. The moment she indicates interest and approaches him, though, he changes his mind, becomes unpleasant, shoos her away, or even attacks her. As soon as she discourages the female flies off, he screeches after her... If she gives him another chance and flies back, he may very well attack her again. Gradually, though, should the female's patience last that long, the fickle male's grumpiness subsides and he may actually be ready to mate. He is conflicted and ambivalent. Sex and aggression are mixed up in his mind, and the confusion is so profound that, if not for the patience of the female, this species might fail to reproduce itself... But a similar confusion in the minds especially of males holds for many species, including reptiles, birds, and mammals. Some of the brain's neural circuitry for aggression seems dangerously cheek by jowl with the neural circuitry for sex. The resulting behavior is strangely familiar. But of course humans are not herons." (Sagan & Druyan, 1992, p. 191)

All this from human females standing up and growing buttocks? Yes. Why those features? There are many theories, many of which seem to say that females grew these and other features, such as breasts, ear lobes and plump lips to be more appealing to the males, to make sex sexier (most of these theories have been advanced by male anthropologists, such

as Desmond Morris in his THE NAKED APE, an interesting point for speculation). I reply, hogwash. Evolution does not create major structural changes in animals to make them sexier and at the same time make sex more difficult physically, and by extension psychologically. Besides, what was wrong with the old features? Chimps and baboons still have them and they don't seem to find each other unattractive. Warthogs find other warthogs attractive without buttocks and large, well-rounded breasts, too.

No, evolution creates changes that improve chances for survival; if the changes don't contribute to survival, the animal carrying them dies out. Why these changes occurred doesn't concern us, are a matter of controversy, and in any case would take too long to explain in an advertising book. [\(12\)](#) Suffice it to say, nature thought they were necessary to improve the female's, and by extension her offsprings', chance of survival.

However, convenience doesn't figure into evolution. An animal either adapts to the changes or dies out. Such is the case with protohumans, their anatomy and their sex lives -- the changes contributed to survival, they adapted to the inconvenience. That adaptation to inconvenience has guided human reproductive strategy, and scarred relations between the sexes, ever since. However, as long as babies are born, nature doesn't care.

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The above is a look at the biology of human reproduction. However, as mentioned earlier, humans have something that no other animal has, and that has a greater effect on reproduction strategy than any other animal -- the human mind. I will discuss that in the next chapter, under [REPRODUCTION AND SOCIETY](#).

8 Note that I refer to land mammals. There are, of course, aquatic mammals such as whales, dolphins and seals. However, since very little advertising is aimed at them, I will confine discussion to land mammals.

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9 Gibbons, which hang by their arims during mating, mate face to face. Bonobos (pygmy chimps) also occasionally mae face to face, but the usual method is lordosis.

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10 The gorilla's erect penis averages only 2 inches in length.

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11 The flea has one 15 times his own body length, something that would give any man an inferiority complex.

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12 If you're interested in one possible explanation, one that most anthropologists dismiss as untenable but is entertaining, see Elaine Morgan's THE DESCENT OF WOMAN. If nothing else, it avoid the underlying, subconscious male bias of many attempts to explain why humans are physically so different from other primates.

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