Heart in Hand

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The Significance of Sex

Man is incarnate sexual instinct, since he
owes his origin to copulation and the
wish of his wishes is to copulate.
Arthur Schopenhauer
The World as Will and Representation

When human beings are put together in relatively small groups populated by both men and women sexual overtones are always present. It happens in all types of settings: in an office environment, on a construction site, in a classroom, and in an open heart operating room. In this latter setting, with the patient asleep and covered with drapes on an operating table in the center of the room, nine men and women work as a closely integrated team. The team of people working constantly together in the heart room is like a test tube sample of human culture.

The operating room team for heart surgery consists of the surgeon, his or her surgical assistant, two scrub nurses (who are gowned at the table with the surgeon and surgical assistant), a circulating nurse, the anesthesiologist, an electronics technician/anesthesiology assistant, the perfusionist—this individual runs the heart-lung machine, and an echocardiogram technician. Additional personnel include, in certain cases, a second perfusionist to run an intraortic balloon pump, and one or two technicians

to run a kidney dialysis machine. One of my cardiac surgeon partners is a woman, Dr. Mary Grace Gregg. We have worked together for more than ten years. Some of our scrub nurses are men and some the anesthesiologists, surgical assistants, and perfusionists are women. Working together as a smoothly functioning team, these men and women spend many hours together in close quarters, day after day, year after year fixing people's hearts. It is a highly charged atmosphere, where potential disaster and the threat of death is ever present. Sexual feelings pervade an open heart operating room just as in any other group setting, but with perhaps even greater intensity. In the atmosphere of this unique setting I have seen a number of new relationships form among members of the heart team resulting in the breakup of a number of marriages.

Sex and death are like the poles of a magnet. Sex at the molecular/cellular level, along with the act of love making, generates new life. Death ends it. When the threat of death seems near in the societal microcosm of the open heart operating room sexual feelings become heightened and energized, as if pulled by some strange magnetic force. Our desire for sex is an elemental, all encompassing force that lies at the root of our nature, and it pervades all aspects of our lives.

Schopenhauer's analysis of sex, three-quarters of a century before Freud, became a cornerstone of his philosophy. In his seminal work, *The World as Will and Representation*, the first volume of which was published in 1818 and the second, in 1844, Schopenhauer writes:

> [Sexual desire] is so very much the chief thing, that no pleasures make up for the deprivation of its satisfaction; for its sake, moreover, animal and man undertake every peril and conflict... It is really the invisible central point of all action and conduct, and peeps up everywhere, in spite of all the veils thrown over it. It is the inexhaustible source of wit, the key to all hints and allusion, and the meaning of all secret signs and suggestions, all unexpressed proposals, and all stolen glances; it is the daily thought and desire of the young and often of the old as well, the hourly thought of the unchaste, and the constantly recurring reverie of the chaste even against their will, the ever ready material for a joke, only because the profoundest seriousness lies at its root.

And in another chapter of this book, which is titled "The Metaphysics of Sexual Love," he writes:

> Every day [man's sexual impulse] brews and hatches the worst and most perplexing quarrels and disputes, destroys the most valuable relationships, and breaks the strongest bonds. It demands the sacrifice sometimes of life or health, sometimes of wealth, position, and happiness. Indeed, it robs of all conscience those who were previously honorable and upright, and makes traitors of those who have hitherto been loyal and faithful.

If we wish to fathom the deeper levels of life, we should carefully analyze sex. As I see it, sex is tied together in a fundamental way with the subjects of the next three chapters—Compassion, God, and Music. Sex and God? How are they tied together, you say? In a very interesting way.

Each one of us exists because our parents had sex, and each one of us started life inside our mother's womb as a single cell. We began life when an ovum that our mother ovulated into her uterus became sexually fertilized by one of our father's sperm. The sexual urges that drove our parents to copulate and produce us suddenly come to occupy a central place in our lives with the onset of puberty.

Children, before the onset of puberty, as Schopenhauer puts it, possess a character of "innocence, intelligence, and reasonableness, which is peculiar to the age of childhood." He writes:

> Childhood, which is predominantly theoretical and eager to learn, is followed by the restless age of [teenage] youth, now boisterous and impetuous, now dejected and melancholy, and this passes subsequently into the vigorous and earnest age of manhood.

While thinking about and writing this book I have watched, more carefully than with my two older children, how my son, Michael, made the transition from the sweet reasonableness of childhood to that of a troubled teenager. He is a handsome, blond-haired boy, with a somewhat reserved and detached demeanor that girls seem to like. Beginning at a very young age up to the age of twelve he was unfailingly pleasant, charming, curious, and interested in a wide range of subjects. With the onset of puberty he changed. He became more touchy, particularly with his mother, withdrawn, and sullen. Sports—football and then soccer—provided only a temporary respite to the new

torment he seemed to bear. A succession of girlfriends began to hang out with him. Then a particularly voluptuous one came along and took over his life. He recently set off across the country for college in his loaded down, twenty-year-old car, his girlfriend at his side, to enter, one hopes successfully, the vigorous and earnest age of manhood.

Once in place at puberty, when do our sexual urges finally subside and go away? I have a close friend, George Taylor, who is 93 years old. When asked, "when does a person's sexual desire finally fade away?," he replied, without a moment's hesitation, "about six hours after death." He is married to his fourth wife, who recently celebrated her 80th birthday. He is a tireless patron of the arts, and he remains intellectually very sharp. This man has led a very interesting life, one worthy of a book on its own. He was an advisor to Presidents Roosevelt and Truman on Japanese war psychology during the Second World War and was instrumental in persuading Truman to let the Emperor remain on his throne, thus enabling the Japanese to surrender honorably and avoid the bloodshed that a major allied assault on the Japanese mainland would have entailed. Among other things he also founded the School of Far Eastern Studies at the University of Washington.

I will offer my reflections on sex from three perspectives: from an evolutionary biological standpoint; from the viewpoint of how sex affects our personal lives; and from a philosophical perspective.

Sex began in bacteria early in the evolution of life on this planet, but not like you might think. It began as a way to fix bacterial genes damaged by the ultraviolet light of the sun. Three billion years ago, before a protective ozone layer had formed around the planet, sunlight was much stronger than it is now, particularly the gene-damaging ultraviolet part of light.[1]

Genes are composed of DNA molecules. DNA molecules contain the information necessary for building, maintaining, repairing, and reproducing cells. They are like the blueprints engineers use for constructing a space shuttle, but rather than being written down on paper the tiny DNA molecule contains chemically coded instructions. Damage to this complex molecule, from the sun or any other cause, can result in the destruction of the cells that it controls and regulates. At some early point in the evolution of life, a

single bacterium somehow acquired the ability, with the aide of a newly constructed enzyme, to replace its sun-damaged DNA with undamaged portions of this molecule obtained from some other source. Bacteria have two potential sources of undamaged DNA, that from another bacteria, amorous or not, or from a virus. Viruses are nothing more that genes—strands of DNA, (or RNA)—on the loose without their own cell to live in. Sex at the cellular level is the intermixing of genetic material from more than one source. Sex at this level does not have to involve reproduction.

Bacteria reproduce by a kind of asexual cloning, as is now being done experimentally in sheep, and soon to be happening in humans. A bacterium makes a duplicate copy of its DNA, and then it simply divides in two. The "child" thus produced is an exact replica of the "mother." These more simply constructed single-cell organisms do not need to engage in sex to produce offspring. There is only one parent. But the enzymes that bacteria initially developed to fix ultraviolet-damaged strands of DNA, ultimately provided the means whereby many-celled organisms can produce offspring. These bacteria-derived enzymes, evolutionarily passed on to multicellular organisms, enable plants and animals to engage in two-parent sex.

In plants and animals, and single-cell eukaryotes, sex brings about the union of genes from more than one source to produces a genetically distinct offspring, one which contains a unique mixture of genes from each parent. In the higher vertebrates—reptiles, birds, and mammals—sexual reproduction is inextricably linked to copulation. They engage in sexual intercourse to produce offspring. (Fish and amphibians, the other two of the five classes of vertebrates that have evolved from more primitive life forms, procreate by laying eggs that are fertilized externally.)

While we humans may follow various intellectual pursuits and aspire to create works of art, we are, nevertheless, a species of mammals known as *Homo sapiens.* And we share the same "animal urges" for sex, as do other mammals. Like them, and all the other more than 4,000 species of mammals that currently exist on the planet, we are a class of hairy and warm-blooded vertebrates that conceive offspring inside the mother, who, after birth, are nourished with milk produced by her mammary glands. Our closest mammalian relatives are the great apes, which include the chimpanzee, gorilla, gibbon,

and orangutan. We shared a common ancestor with the gorilla approximately 8 million years ago and with the chimpanzee 5 to 7 million years ago. Indeed, we are as close genetically to a chimpanzee as a sheep is to a goat. Comparisons between human and chimp DNA strands show a 99% fit. A complete fit of their respective DNA indicates that the two organisms are members of the same species and are therefore sexually compatible, which means that their genes can intermix to form a new individual. (Usually, only organisms that are members of the same species are sexually compatible, although sterile hybrids can be produced when certain animals and plants from closely related species mate, such as a mule from the mating of male donkey with a female horse.)[2]

Humans mix their genes by copulating, most commonly, face-to-face. But only marine mammals (with rare exception), such as whales, seals, and sea otters, also engage in sexual intercourse face-to-face. All other higher vertebrates, including chimpanzees and gorillas, have sex belly-to-back. Why do we do it like dolphins rather than like our closest cousins, the chimpanzee and gorilla? Experts in anthropology, evolutionary biology, and paleontology have no agreed-upon, generally accepted answer to this question, but they have come up with some interesting theories. One theory, which I particularly like, postulates that our ape ancestors, after branching off from the path of evolution that led to the present day chimpanzee, left the land and became aquatic apes. Five to seven million years ago, according to this theory, our aquatic ape ancestors spent most of their time in shallow seas near the shore diving for shellfish. Unlike the chimpanzee, we have a short, broad pelvis that is more suitable for upright posture. Marine mammals, like seals, have a similar pelvic configuration, which makes it possible for them, as it would for an aquatic ape, to more readily float upright in a vertical position and scan the water for food. Also, in contrast to chimpanzees, we human great apes have a subcutaneous layer of fat, a well-developed diving reflex, salt wasting sweat glands, and we are relatively hairless, all of which could have come from aquatic ape ancestors.[3]

Our oldest *human* ancestor, *Australopithecus afarensis*, came into existence approximately four million years ago. This four-foot tall creature lived in a part of Africa that is now Ethiopia. They walked upright on two legs, like we do, and they used

rudimentary tools. Their brains were small, and they were probably not particularly smart. (Some paleoanthropologists postulate that another species of *Australopithecus*—seven have so far been discovered—is our actual ancestor, *Australopithecus africanus.* This species of *Australopithecus* lived in what is now South Africa.)

With regard to sex a crucial evolutionary development occurred in these human-like ancestors. It had to do with their manner of ovulation. Australopithecine females did not develop a brightly colored swelling on their rump at the time of ovulation as other apes and monkeys do, which lets their male companions know when they are ready to be impregnated. Like women today, paleobiologists believe that no observable changes occurred in their behavior or physical appearance when they ovulated. Their ovulation was concealed—hidden—from their male partners, and themselves. As a consequence of this new evolutionary development, Australopithecine females became sexually receptive on a more or less continuous basis. And the males in this species, like men today, were obliged to stay with a favorite female for extended periods of time in order to impregnate her. Concealed ovulation, so the experts tell us, led to pair bonding. Such a relationship benefited the female because the male stayed around to help provide protection and nourishment for her and their progeny. These benefits were important because the children of these ancestors, like our children today, required a prolonged period of childrearing, twice that of chimpanzees. From the male point of view pair bonding was acceptable because he had ready access to a female who remained sexually receptive on a regular basis, and he could also be reasonably sure that the offspring she produced was actually his.[4]

Compare this with the sexual practices of chimpanzees and gorillas, our closest cousins. When a female chimpanzee develops a brightly colored swelling on her rump, which signals that she has ovulated, and goes in heat, she will mate with all of the male chimps she is traveling with—with big ones and small ones—sometimes with more than fifty. As a result, genes for both large and small male body size are propagated equally into subsequent generations of chimpanzees, so the males and females in this species of primate are basically the same size. Gorillas, our "second cousins," have harems. Male gorillas have wrestling contests in order to decide who takes control of the harem. Since

the biggest and strongest male gorillas generally win the contest, they are the ones that get to mate with the females in their newly won harems. Consequently, only genes for large body size are propagated into subsequent generations of male gorillas, and as a result male gorillas are considerably larger than female gorillas. Both species of great apes, however, copulate infrequently, only once a month when the female goes into heat. Sex is relatively unimportant in the day to day behavior of chimps and gorillas. As with other mammals, it only becomes important when the female goes in heat—during the few days each month when an ovum is ready to be fertilized in her uterus. Most animals in nature devote the bulk of their energies towards finding food and avoiding predators, not to sex. Their interest in sex is nothing like our species' interest in sex, which we pursue on a daily basis. Sex for us, of course, does not serve a solely reproductive function, as is the case in nearly every other animal species. A distinguishing characteristic of our species is that we have sex not only for "procreation," but also for "recreation," as one evolutionary biologist rather cutely describes it.[5]

The importance of sex in our lives is reflected by the unusually large size of a woman's breasts and a man's penis, as compared with other primates. The human penis is considerably larger than that of a chimpanzee or a gorilla, and other female mammals do not have breasts as such--they have mammary glands that are relatively inconspicuous and enlarge only during lactation when they feed their offspring milk. Human females are unique in having prominent, alluring breasts, but the size of a woman's breasts has nothing to do with how well she can produce milk--when not lactating they are composed almost entirely of fat. Big breasts are widely admired in American society and serve to heighten sexual interest, sell magazines, and hold one's attention during television commercials.

Men tend to be more easily aroused and more available for sex than women, or at least it would so appear. Indeed, in most animal species the male is sexually more eager and less discriminating than the female. Such behavior is consonant with the biology of mammalian sex. A woman produces around 400 ova in her lifetime, generally one a month during her childbearing years, and that egg is 85,000 times larger than a man's sperm. Each ovum represents a substantial reproductive investment, particularly if it

becomes fertilized. In contrast, a man produces 100 to 300 million sperm with each ejaculation. They are plentiful and they are easily replaced. Like their sperm, whose business it is to be active and find any egg, the males in most species of mammals will attempt to fertilize any available female. The act of copulation, therefore, is biologically of much greater reproductive importance to a woman than it is to a man.

In our species, women also obtain a substantial degree of pleasure from sex because they are biologically equipped to experience an orgasm. Males of other mammalian species probably experience, as human males do, a climax of sexual excitement when they ejaculate. The females of other mammalian species, to the best that one can tell, probably do not experience an orgasm when they engage in sexual intercourse. A female ape, for example, would just as soon look around and eat a banana while she is copulating as not. Human females, however, do clearly experience orgasms. It is associated with a release of swelling in the clitoris and with spasms of the uterine and pelvic muscles. Controversy exists over whether a woman also ejaculates a nonurineferous fluid from her urethra. A man's orgasm entails a clear-cut feeling of sudden intense pleasure, which occurs with ejaculation. A woman's orgasm, however, has less well-defined physical characteristics. It has been described as a climactic, tension-releasing response that starts in the groin and culminates in a crescendo of feeling, where all thought processes seem to stop and a warm, relaxing glow suffuses the body. Woody Allen puts it this way in *Manhattan* (in a conversation that takes place between Issac and a woman at the Museum of Modern Art, where a large group of people has gathered to support the equal rights amendment):

> *Woman*--I...uh, I finally had an orgasm and my doctor told me it was the wrong kind.
>
> *Isaac*--Did you have the wrong kind? Oh, really? I never had the wrong kind.
>
> *Woman*--Yes?
>
> *Isaac*--ever, never. Uh, my worst one was right on the money.

Since both men and women in our species can have an orgasm, the question naturally arises: who derives the most pleasure from sex, the man or the woman? At first

glance one might conclude that it must be the man, since it is men who are most often the sexual aggressors and who seem to be the most eager for sex. In our society it is usually men who are accused of sexual harassment. But what is the reality of the situation?

One place to try and find the answer to this question is in myths. As Carl Jung and other analytical psychologists point out, myths reveal the basic inner truths about human nature. Myths are a symbolic distillation of human experience that are true for all time. As my women colleagues in the operating room were surprised to learn (but none of them disagreed), the Tiresias myth tells us that it is *women* who derive the greatest pleasure from sex. Tiresias was a Greek seer and the only person in Greek mythology who had experienced life both as a man and a woman. When Zeus and his wife Hera get into an argument over whether the man or the woman experiences the greatest pleasure in love making, they decide to consult Tiresias. Without hesitation he assures them that if the enjoyment of sex is constituted out of ten parts, nine go to the woman and only one to the man. In the story, furious that this woman's secret has been revealed, Hera strikes him blind. But a grateful Zeus then gives Tiresias the gift of unerring prophecy by enabling him to understand the speech of birds.[6]

Tiresias' insight into human sexuality helps to explain why some women have a "prodigious sexual appetite," as is the case with Jennifer in Allen's *Play It Again Sam*. Sitting on the comfortable sofa in her apartment on their first date, she says to Allan (played by Woody Allen), "I won't deny it. I'm a nymphomaniac. I discovered sex very early. I slept with everybody. My schoolteacher--my sister's husband--the string section of the New York Philharmonic. I wanted to have sex all the time." It is not unreasonable to suggest that Teresias is right, that the women of our species experience the greatest amount of sexual pleasure. Coupled with a natural male eagerness for it, one can thus well understand why we are so preoccupied with sex, and why it pervades every aspect of our lives.

In some cases the human pursuit of sexual pleasure is propelled by a deep-seated need to fill a void in one's life. Alvy Singer puts this fact well in *Annie Hall*, when he says, "I think there's too much burden placed on the orgasm, you know, to make up for

empty areas in life." Human sex certainly did not start out this way, that is, as a means, because of the pleasure we derive from it, to make up for the empty areas in life.

Two and a half million years ago our Australopithecine ancestors, with their small brains, did not confront the meaning of life or have to deal with any "empty areas" in their lives. Even though they walked the way we do, on two legs, and were our first human-like ancestors, they did not reflect on such things. Then the brains of our human ancestors began to enlarge. This occurred very slowly through more than 150,000 generations of two successive species of ape-like humans, *Homo hablis* and *Homo erectus*, before our species, *Homo sapiens*, came into being. Our ancestor *Homo erectus* lived from 1,600,000 to 300,000 years ago, first in Africa and then later also in Europe, Asia, and Indonesia. When the biologically modern form of our species emerged around 100,000 years ago, we wound up with brains more than three times larger than those of our earliest human ancestors.[7]

Our big brains have conferred consciousness on us. We are conscious of ourselves and of others, of our place in the world, and of the fact that we are eventually going to die. We are aware of the feelings and motives that drive us. We can reason and think logically and engage in reflective thought. We became a substantially different and unique kind of animal when we developed self-awareness, and this attribute has disconnected us from all other animals. By acquiring consciousness our species has been expelled from the instinct-driven world of animals in nature—the Garden of Eden—into a brave new world, where we have a remembered past and an uncertain future. We now live in a world with religion, laws, inventions, science, and art. And with our big brains, and 50,000 years of cultural evolution behind us, we have developed a multifaceted approach to sex. But we are still mammals, and we still possess animal instincts—disguised, suppressed, and sublimated as they may be. As Carl Jung puts it: "What we call our civilized consciousness has steadily separated itself from the basic instincts, but these instincts have not disappeared."

I see the biblical Garden of Eden story as a mythological rendering of birth of consciousness. The apple that Adam and Eve ate symbolizes the birth of consciousness. In eating that apple, human beings gained self-knowledge and an awareness of opposites.

After Adam and Eve ate the apple, they recognized that they were naked—and different from each other—and they covered themselves. By giving in to their temptation to eat this fruit, the Bible says that our species committed a sin, the Original Sin, and we must be punished for it. Other myths echo this theme. The gods punish Prometheus for stealing the light of their celestial fire, from which he obtained self-knowledge and consciousness.

In other myths, the apple is a symbol of life, of libido, of natural energy and earthly desires, including the thirst for knowledge. In Norse mythology, for example, a barren woman becomes pregnant by eating a magic apple. But in Hebrew and Christian teachings an apple is a tainted, forbidden fruit. It is responsible for the Fall of man and woman from a state of unknowing, timeless unity with nature into a conscious world made evident by an awareness of opposites—of life and death, good and evil, happiness and unhappiness, truth and falsehood, and war and peace.[8]

In addition to its importance in myths, this fruit also figures importantly in two other pivotal developments in the cultural evolution of our species. In the 17th century, Newton watched an apple fall from a tree at his mother's farm, which, he said, led him to discover the law of gravity, a discovery that brought about the Industrial Age and the Newtonian worldview. And in this century, for no apparent reason other than it "sounded good," Steve Jobs selected the name Apple for the personal computer that has become a major catalyst in the transformation that is now occurring from the Industrial Age to the Information Age.

The symbolic importance of the apple is reflected in the Alar scare that occurred in the United States in 1989, which led to a decreased demand for apples, causing their price to plummet and thereby devastating the US apple industry. Alar is a pesticide that enhances the beauty and crispness of apples, and the unfounded media reports that this chemical could cause cancer in children reaped havoc on the apple industry. The public was told that this fruit, which in myth conferred self-consciousness on our species, when treated with Alar can damage one's health. Apples were taken out of school lunchrooms. The media ignored the fact that peanut butter contains an equal amount of this chemical and the sale of peanut butter was not affected by the scare.

The origin and significance of consciousness is important in considering the subject of sex because this uniquely human attribute has had a great impact on our sexual behavior. Indeed, concealed ovulation may have come about as a result of a conflict between biology and consciousness. According to one theory, concealed ovulation was naturally selected in human evolution for this reason: Early human female apes that became aware of the connection between ovulation, as manifested by the swelling and change of color of their external genitalia, and pregnancy would tend to avoid sex when they ovulated so as not to get pregnant and suffer the consequences of a painful childbirth, with its high mortality rate, and the responsibilities of childrearing. When the physical attribute of concealed ovulation arose (through a random, chance genetic alteration, the way all new physical attributes arise in the evolution of living things), females with this attribute wound up producing more offspring than women who could tell when they ovulated and could thus avoid getting pregnant. As more and more offspring were produced containing the genes for concealed ovulation, the early human/ape women who knew when they ovulated died out. Women who developed the ability to have an orgasm likewise would tend to copulate more frequently, produce more offspring, and eventually populate the species with more and more women that had this attribute. After many generations women without the new genes that provided orgasmic pleasure from sex died out as well.

From a sociobiological perspective, Tiresias' disproportionate allocation of sexual pleasure between the woman and the man is quite appropriate. The female in our species must bear the greatest burden in the propagation of offspring. She must first nurture the developing fetus inside her womb, which greatly distorts her body contours in the process. Then, after nine months of gestation and a painful and potentially dangerous delivery, she must nourish the helpless infant with milk from her breasts (or now, in our culture, alternatively from a bottle) at frequent intervals throughout the day and night. And then she assumes the primary responsibility for childrearing over the next eighteen years. In a species that has become conscious of these facts, it indeed seems quite reasonable that nine-tenths of the pleasure of sex should go to the woman, if for no other

reason than as an inducement to make her more willing to bear the heavy burdens of procreation.

In addition to engaging in sex for procreation and for the orgasmic pleasure that it can give, human sexual behavior is inextricably entwined with feelings of love. When, for example, the three prostitutes invite Tom to have sex with them in Allen's movie *The Purple Rose of Cairo*, he says, "No, I'm in love with someone else," whereupon one of the prostitutes replies, "No, we're not talking about *in* love, we're talking about *making* love." Humans not only "make love" for the pleasure it can give, but we use sex to establish a loving, caring relationship with another person, which is to say, we fall "in love." Some behavioral scientists term the kind of sexual activity that is associated with being in love (as only they can) *relational sex*. Our biologic predisposition for pair bonding and face-to-face copulation promotes close emotional attachments, which (with our conscious brains) we recognize and foster. This person-to-person, romantic form of love, however, is a recent innovation in the history of our species. According to Joseph Campbell and other scholars, it began only about 800 years ago—with the troubadours in *12*th century Medieval Europe.

What we know about love comes from a variety of sources: most importantly, from personal experience, but also from poets, novelists, filmmakers, and philosophers; from myths and religions; and also now from the behavioral sciences and neurobiology. In his book, *The Unbearable Lightness of Being*, Milan Kundera tells us that being in love brings about the desire for shared sleep. He writes:

> Having sex with a woman and sleeping with a woman are two separate passions, not merely different but opposite. Love does not make itself felt in the desire for copulation (a desire that extends to an infinite number of women) but in the desire for shared sleep (a desire limited to one woman).

On the one hand we have an "animal lust" to copulate, what Joseph Campbell calls "the zeal of the organs for each other." And we also find ourselves forming romantic, intimate, loving relationships with another person. These two passions, however, may not be as separate and distinct as one might think. Reflecting on this

subject, Ariel says, in Allen's *A Midsummer's Night Sex Comedy*, "Is it possible to feel lust without also being in love?" And in *Love and Death,* Sonia says:

> Love is everything Boris. I want to meet some man and scale the heights of passion. Some man who embodies the three great aspects of love—intellectual, spiritual, and sensual. So many women settle cheaply. They marry for money. But I tell you I feel as though my life would be wasted if I didn't love deeply with the man whose mind I respected, whose spirituality equalled mine, and who had the same lustful appetite for sensual passion that drives me insane. I guess you could say I'm half saint, half whore.

Behavioral scientists describe two types of sexual love. They term one type (once again, as only they can) *passionate/romantic* love. It is a highly charged, transitory state, and couples who are caught in its grip develop a strong craving for each other. The burning desire that the lovers have for each other, however, eventually subsides—after a number of months, or after a year or two. Passionate love has the quality of a blind intensity, where one is pierced by Cupid's arrow and falls "head over heels" in love. Some observers use the term *Eros* for this type of love. Often, when the exhilarating, overpowering emotions of *Eros* begin to wane, faults and imperfections in the loved one initially overlooked become apparent. If a transition is not made to a more enduring type of sexual love, trouble ensues. Stable, "level-headed" people tend to view the behavior of those who are caught up in the grip of passionate/romantic love as rather foolish, particularly because it doesn't last. Behavioral scientists term the other type of sexual love *companionate* love. It is less turbulent and more durable. It produces long-lasting monogamous relationships founded on trust, sharing, respect, and affection. Sexual desire is an important component, but qualities such as caring, respect, commitment, intellectual and spiritual compatibility are equally, if not more, important. From what I have seen, this type of long-lasting sexual love is not limited to heterosexual couples. Same sex couples—male-male and female-female—also seem to experience the same level of companionate love as do female-male couples.

Anthropologists have studied sexual behavior in more than 850 human societies. Their findings can be briefly summarized as follows: The marriage form in most societies is *polygynous*, where one man is married to more than one woman. A relatively

small number of societies, approximately 15 percent, are *monogamous*, where a man can be married only to one woman (at a time). A very small percentage of societies, well less than 1 percent (only 4 in the 850 that anthropologists have studied) are *polyandrous*, where one woman is married to more than one man. Our society, of course, is supposedly monogamous. Isaac (in Allen's film *Manhattan*) espouses this cultural practice when he says, "I believe that people should mate for life, like pigeons and Catholics." I say "supposedly" because we certainly do not live up to this ideal very well. The great majority of men and women in our society do not remain sexually faithful to only one person throughout their lives. A variety of population studies indicate that more than 50 percent of both men and women in our society engage in extramarital sex. Furthermore, more than 50 percent of marriages now end in divorce and these men and women go on to form other sexual bonds.[9]

It turns out that less than 5 percent of all species of mammals are monogamous. It used to be thought that more than 85 percent of bird species are monogamous. This traditional view of sexual behavior in birds, however, has now come into question, and the actual number of species of birds that are monogamous is much lower, probably around 30 percent.[10]

Men and women also can experience orgasmic sexual pleasure alone, through masturbation. As Alvy says in *Annie Hall*, "Don't knock masturbation, its sex with somebody I love." And, as we well know, human beings also have sexual relations with other people of the same sex. The realities of human sexuality are indeed very complex. After completing his extensive population studies of male and female sexual behavior, (the ever controversial) Alfred Kinsey is reputed to have said, "In matters of sex, everything you can possibly imagine has occurred and much that you cannot imagine."

What is it about this powerful desire that keeps the brothels full, the topless bars well attended, and pornographic videos and web sites in heavy demand? What is the underlying reality of our desire for sex?

If we wish to fathom the true nature of this elemental force that so rules our lives, we must turn to philosophy, and the two philosophers that can best help us to understand the philosophical importance of sex are Immanuel Kant and Arthur Schopenhauer.

With the publication of his *Critique of Pure Reason* in 1781, Immanuel Kant (1724-1804) revolutionized the way human beings view the world. If this book had been an earthquake, it would have registered a 9.5 on the Richter scale. In this thought-provoking work Kant presents a new theory of cognition—a new theory of perception and knowledge. It turned philosophy on its head. Kant shows us that the world we perceive with our five senses—what we see, hear, touch, taste, and smell—is *not* the real world, the world of things as they are in themselves, or Thing-in-Itself. Our perceptions are framed by the concepts of *space*, *time* and *causation*. We perceive things within a scaffolding of three-dimensional space and within the tenses of past — present — future. We conceive of things as extending in space and changing in time. And events occur within a framework of causal connections.

What Kant did that was so revolutionary was to show that the way we see the world is not the way the world really is. Our pre-programmed concepts of space, time, and causality help us to make sense of the world we live in. But—and this is his great insight—this scaffolding is *not an integral part of the structure of the world itself*. Our concepts of space-time-causality are like a software application in a computer. Our brains contain an inborn, biologically pre-programmed type of software application—call it the "*Homo sapiens* space-time-causality program"—that processes, organizes, and stores the sensory information that it receives. The *Homo sapiens* space-time-causality program serves a practical, evolutionarily successful function: it works quite well in organizing and interpreting the sensory data that we obtain in the world of human experience.

Underlying reality—the *real* world—is something altogether different from what we experience as human beings, including those aspects of it that we can describe mathematically and measure with special instruments. Our everyday Newtonian concepts of space and time do not apply either to the macroworld of special and general relativity or the microworld of quantum mechanics. Indeed, they make no sense whatever in the microworld of quantum mechanics. And nothing was known about the theories of special and general relativity and quantum mechanics in Kant and Schopenhauer's time.

In his theory of special relativity, Einstein showed that time, as we conceive and measure it slows to a halt when an object approaches a speed of 186,000 miles a second, the speed of light. At this speed the spatial dimensions of the object contract to nothing and its mass increases infinitely. An electron, for example, when pushed to 99.999 percent of the speed of light in a giant particle accelerator will gain 40,000 times its original mass.

In the microworld of quantum mechanics, mathematical equations describe an uncertain, random world of particles that are also simultaneously waves. The nature of the subatomic forces, waves, and particles in the quantum world is, as one physicist puts it, "utterly alien to human thought." The world that we know from our biologically determined sensory apparatus is nothing like the world of quantum mechanics that physicists describe with their mathematical equations, which, in any event, are simply models that confer a logical and predictable structure to physical reality. We do not see things as they are in themselves, nor, for that matter, does the mathematics of quantum physics. We see, measure with instruments, and mathematically describe only *aspects* of things.

Kant terms the world that we perceive and measure the *phenomenon*. He terms the reality that underlies our perceived world, the world of things as they are in themselves, or Thing-in-Itself, the *Noumenon*. Schopenhauer uses the term *vorstellung* for the perceived world, which in English means the "content of experience," or "representation," and the term *Ville—Will* in English—for the Noumenon. I use Kant's term Noumenon for underlying reality throughout this book. Schopenhauer's term Will, with a capital "W", can be confusing when, at other times, he uses this word with small case "w" to indicate the psychological state of human willing.

Kant tells us that the Noumenon is inaccessible to human knowledge and lies outside the realm of human thought. Schopenhauer, Kant's immediate successor, agrees, but he thought that there might at least be something that we could know *about* it. Schopenhauer found a new path to the realm of the Noumenon, and the first way station on this path is sex.

He pursues an empirical approach. (I like to think that this is because Schopenhauer first studied medicine before he became a philosopher.) Such an approach is grounded in experience and is, by its nature, consensually verifiable. Schopenhauer strongly cautioned against bantering about empirically empty concepts like "Ground of Being," "Substance," "Necessity," "Perfection," and "The Good." Such rhetoric, he says, serves no useful purpose—and it fogs the mind. He harshly criticizes other philosophers, most especially his contemporary Hegel, for doing that.

Schopenhauer recognizes—along with Kant and other philosophers that followed them, notably Ludwig Wittgenstein and Henri Bergson—that the walls of the "castle" that contains the essential truths of the world are impenetrable to analytical thought. And he recognizes that an attempt to scale the walls of this metaphorical castle with descriptive language and conceptual thinking, particularly with empty universal concepts like "Ground of Being" and "The Good," is futile and a waste of time. Schopenhauer makes clear that the essential truths of life and questions about underlying reality, regardless of how we might imagine it, lie beyond the boundaries of language and rational thought. But he nevertheless did find an entrance of sorts into the castle that contains the essential truths of life. He says that our capacity for self-awareness and self-reflection provides a way in. Schopenhauer discovered that one can enter this otherwise impenetrable castle of rock bottom reality through a Freudian type of self-analysis he terms *intuitive perception*. Through careful self-examination of our inner sense we can gain *intuitive* "knowledge," or insight, into the essential metaphysical truths. The 20th century philosopher Ludwig Wittgenstein subsequently showed, in a convincing fashion, that such "knowledge" does indeed necessarily fall outside the limits of descriptive language, and that it can only be conveyed, if at all, by indirect mystical or poetical communication.

Schopenhauer makes this surprising observation—but it is really not so surprising when you think about it, since all of us who have reached puberty have been caught up, at one point or another in our lives, in the thrall of sexual desire: We have only to sense intuitively what drives us so to have sex, and we can catch a glimpse of the inner nature of the world, of underlying reality, of the Noumenon. Words, we know, can't describe it,

but we can at least say that the Noumenon is something like a *blind impulse*; an *insatiable, undifferentiated, primal energy*; a *mindless, irrational will to exist*; a *primitive, unconscious force*; an *incessantly striving, pulsating totality*. Everything in the universe, in one way or another—inanimate objects, microorganisms, plants, and animals—is a manifestation of this more basic reality. And since this root "primal force" underpins all things, Schopenhauer concludes that "*force and substance are inseparable for at bottom they are one*." And consider this: Schopenhauer (along with Kant) came upon this insight almost a century before Einstein formulated his revolutionary theory of the *equivalence* of mass and energy, defined by $E=mc^2$ (where energy [E] is equal to the mass of an object [m] times the speed of light [c] squared).

Following this line of thought to its logical conclusion, Schopenhauer pointed out that our species' conscious intellect has no metaphysical significance. Our reasoning, reflective intellect is merely our utilitarian guide to the surface events of the perceived world. It is simply a unique, biological byproduct of our big brains. Using an analogy from our current information age, where the brain could be viewed as our body's internal computer, our intellect is a complex software application for the hard drive of our body's biologic computer. Our intellect provides a shiny veneer to our basic animal nature. Schopenhauer likens intellect to the surface of the earth. The ultimate reality of the human condition must be plumbed from our unconscious interior, not from our conceptual, conscious surface. He terms this unconscious interior the will, with a small case w, and he surmised that the will in human beings to some degree mirrors, or is a manifestation in the phenomenal world of the noumenal Will. We know intuitively that irrational, internal forces affect our unconscious will, particularly sexual desire. Schopenhauer first defined, more than a half a century before Freud, the central ideas that form the basis of Freudian psychology. These include the pervasiveness of sexual motivation, the concept that our thoughts and actions are for the most part unconsciously motivated, and that the *will* (i.e., the unconscious mind) can repress the intrusion of unpleasant thoughts and feelings into one's consciousness. Freud acknowledged Schopenhauer's primacy in these matters (although he claimed that he happened upon these insights independently). Bryan Magee and other scholars have pointed out that

there is a striking similarity between Schopenhauer's descriptions of the *will* and *intellect* and Freud's descriptions of the *id* and *ego*. Freud, however, viewed the sexual instinct as a thing in itself and theorized that it plays a primary role in what he called the oral, anal, and phallic stages of an individual's early psychological development. He seldom discussed sexual impulses in relation to procreation, whereas Schopenhauer viewed the sexual instinct principally as a driving force that is concerned primarily with determining the composition of the next generation.

The ultimate aim of sexual intercourse is to produce offspring. Schopenhauer writes:

> The ultimate aim of all love affairs is actually more important than all other aims in man's life; and therefore it is quite worthy of the profound seriousness with which everyone pursues it. What is decided is nothing less than the *composition of the next generation.*

By producing offspring, Schopenhauer writes, the "kernel of an individual's true nature," his or her "true being-in-itself," is transmitted in one's children and through them to subsequent generations of our species. It turns out that the DNA molecules that make up our genes are the "kernel of an individual's true nature." Humans, in fact, have more than 100,000 genes housed in the nucleus in each one of our cells, packed into 23 matched pairs of chromosomes—46 in all. Our sex cells, sperm and ova, each contain 23 chromosomes. Upon entering an ovum the 23 chromosomes in a man's sperm pair up with the 23 chromosomes in the woman's ovum to make up a new, unique, complete set of 46 chromosomes. The new individual thus created is an amalgam of one-half a genetic copy of the father and one-half a genetic copy of the mother. In all plants and animals, this is the basic process, known as *two parent meiotic sex*, by which the "kernel of an individual's true nature" is transmitted to one's offspring, which Schopenhauer described more than 150 years before it was known that DNA molecules in the form of genes are the functional unit of heredity.

Schopenhauer discerned that *procreation* is the driving force behind our sexual desires, not the orgasmic pleasures or loving relationships that human beings can derive from sex. He points out that our two most basic animal instincts are the *will to reproduce* and the *will to live*, and of the two the will to reproduce is the most important. When a

person dies the will to live in that individual is extinguished once and for all. By producing a child, however, half of the parent's genes remain alive! The information contained and encoded in our genes lives on in our progeny. The abiding joy with which an elderly person greets the birth of a grandchild reflects the importance of this child as the carrier of that person's genes into the future. As the grandparent's life draws down to a close, it is through one's grandchildren that one achieves a certain degree of biologic immortality (more about this in the last Chapter).

Schopenhauer notes that each species of living things is analogous to a tree. The innermost features of a tree—its roots and trunk—represents the collective sexual impulses of the species with its given pool of genes. Each individual of the species is like a leaf on the tree, drawing its nourishment from the genes it contains; *and* the individual also participates in the tree's nourishment by sexually reshuffling its genes with those of other individuals to propagate new "leaves" on the tree. The sexual impulse that spurs propagation issues forth through the roots of the "tree" of the species, from the fertile soil that embodies the innermost reality of life. Reflecting on the strong attachment that two lovers have when they are caught in the grip of passionate/romantic love (to use the behavioral scientists term for it), Schopenhauer writes:

> They feel the longing for an actual union and fusion into a single being, in order then to go on living only as this being; and this longing receives its fulfillment in the child they produce. In the child the qualities transmitted by both parents continue to live, fused and united into one being.

People who are swept away in the passion of sexual love are, as Schopenhauer says, "caught in the whirlpool of the will of the species." Their behavior may sometimes appear wild and foolish, but it is closer in touch with the basic reality of life than other more measured and reflective human activities. While I admit it could be a stretch, one might even argue that the quality of what is produced is directly related to the degree of sexual passion involved in its production. That is to say, the better the match for producing a genetically balanced and healthy offspring the greater the degree of passion involved in the sexual relationship that produces it. Left to its own devices, our sexual instinct leads us to select mates that are a good genetic counterpart for the child we wish

to produce. Women in particular, since they are biologically more discriminating and selective, instinctively select sexual partners that will provide a good genetic match for siring their offspring. As Allen humorously notes in his screenplays, this might be why Jennifer prefers to have sex with the string section of the New York Philharmonic while Ariel prefers the infield of the Chicago White Sox. Could it be that Jennifer and Ariel prefer violinists and baseball players respectively for sexual partners because they know instinctively that the resulting offspring would be a good genetic match for them? I don't want to belabor this point, but it seems, intuitively, to be correct. Maybe that is why, with an artist's insight, Allen knows that he can make us laugh by having Ariel prefer to have sex with the infield of the Chicago White Sox, because it reveals an unexpected, important truth about the reality of life.

The driving force that propels us into the bonds of passionate sexual love and that makes us want to produce offspring comes from a deeper realm than that which leads us to establish monogamous relationships and companionate sexual love. It is an irrational, timeless force. Like the Noumenon, it is tenseless—it does not have a sense of past or future. The consequences of one's actions are only the concern of conscious individuals in the phenomenal world of space-time. Schopenhauer writes:

> [Sexual love] is infinitely superior to any interest of mere individuals, however important it be. Therefore honor, duty, and loyalty yield to this alone, after they have withstood every other temptation, even the threat of death..., and adultery is committed recklessly when passionate love, in other words the interest of the species, has taken possession of them. It seems as if they believed themselves to be conscious of a higher right than can ever be conferred by the interest of individuals, just because they act in the interest of the species.

Our myths also support the view that our sexual impulses arise from a noumenal source. The Greek God of Sexual Love, Eros, was born at the beginning of time out of Chaos (the Void), and he brought about the union of the original father and mother, Uranus (sky) and Gaia (earth). Eros, in this early version of the myth, is the oldest of the gods; he is a personification of the generative power of life that infuses living creatures. He is a procreative force that ensures the continuity of the species as well as the internal

cohesion of the cosmos. In this regard, the Greek philosopher Empedocles, in the 5th century BC, taught that there were two opposite forces in nature, one of attraction and binding and the other of separation and repulsion. He termed these two forces *Love* and *Strife* respectively.

A later version of Eros makes him the youngest of Gods, a son of Aphrodite, the Goddess of love. We know this Eros best as Cupid. In spite of his childish appearance, Cupid has the qualities of a tyrant and despotic demon. He is blind and has wings and carries a deadly dart. Schopenhauer notes that the concerns of individuals pale before Cupid's great work. He writes:

> Compared with the importance of his great business concerning the species and all the generations to come, the affairs of individuals in all their ephemeral totality are very insignificant; hence he is always ready to sacrifice these arbitrarily.

Consider the familiar phrase "love is blind." From a mythic perspective, which compares with Schopenhauer's view of the matter, this is what I think Cupid and his actions mean: Cupid's blindness symbolizes the noumenal origin of sexual love—it is a primal force that is not sense dependent. Eyesight, one of the means with which humans and other animals perceive our world, has no relevance to the Noumenon. Cupid's deadly dart symbolizes the sacrifices that he requires of individuals in perpetuating one's genes in the species. Cupid's wings signify changeableness—with passion spent on the last affair one's sexual ardor is transferred to a newly desired person who comes into view. Cupid seems capricious because he is not concerned with what is good for a particular individual, instead he is concerned foremost with the genetic composition of the next generation. Irrespective of what close personal attachments individuals may form, whether legally defined through marriage or not, if an attractive match for producing genetically desirable offspring presents itself, Cupid will tear those attachments apart regardless of the consequences. And once the desired offspring are produced, Cupid couldn't care less whether the romantic attachment that formed between the two individuals in carrying out this task endures or not. The bop jazz saxophonist

and humorist James Moody puts it this way, “Love is blind, but after you get married your eyesight comes back!”

Perhaps the most striking manifestation in nature of the primal force that spurs on living things to reproduce offspring is to be found in the emperor penguin. Schopenhauer talks about the instincts of insects, bees, ants, dogs, ducks, and woodcocks, among others, but when he lived nothing was known about the breeding habits of emperor penguins. These big, four feet tall, swimming, flightless birds live and breed in Antarctica. They are the only animals that are able to live on the Antarctic Continent during the extremely cold winter. Their large size and correspondingly relatively small body surface area protects them from the cold, but their offspring must also grow to a relatively large size in the egg in order to be able to withstand the cold when the egg hatches. Consequently, their eggs, once fertilized, take a long time to hatch and must be protected through the fierce Antarctic winter. The male penguins, it turns out, fattened up for the task, incubate the egg while the females leave the continent and head out to sea to feed. Each male penguin cradles his precious egg on the top of his feet so that it won’t freeze on the ice, and covers it with a fold of feathered skin that hangs down from his abdomen. He stands there, huddled together with other males protecting their eggs, for several months, in the worst, coldest, windiest weather imaginable on the planet, without food or water, until the egg hatches. Then the newly hatched chick remains squatting on its father’s feet, warmed by his feathered abdominal apron, until the mother returns. She travels over many miles of barren ice and returns to the exact spot where the father and chick are huddled together, where she feeds her newly hatched offspring a diet of regurgitated, half-digested fish. Schopenhauer would have loved how the Will (Noumenon), as it is manifested in reproductive animal life, shines so brightly in this example, a striking one indeed.

Emperor penguins do not reflect on the meaning of life, and they do not have empty areas in their lives that they need to assuage with sex. The relationships that form between male and female penguins are not cemented by love. They are formed by a powerful common instinctual drive to reproduce offspring that can survive the rigors of the Antarctic winter. Emperor penguins do not have a multifaceted approach to sex.

Capable of reflective thought, we conscious human animals exercise some freedom of choice in the conduct of our sexual behavior. Given the pleasure that our species derives from sex, and with birth control measures and abortion now widely available, it is now possible to almost completely isolate human sexual behavior from its procreative role. To further complicate matters, some people become sexually attracted to members of the same sex. And masturbation is a sexual outlet that is frequently used by both men and women. In addition to our species' instinctual drive to reproduce offspring, evolutionary developments such as concealed ovulation and pair bonding, female orgasm, and consciousness have led human beings to engage in sexual activity for reasons other than procreation.

As I see it, the significance of sex in our personal lives has three components. First, we engage in sex for sensual pleasure. And according to Tiresias, which runs counter to conventional wisdom, women achieve more sensual pleasure from sex than men do . Second, sex fosters long-term, caring and meaningful interpersonal relationships, both heterosexual and homosexual. And third, we have sex to procreate offspring. This is the reason why sex has philosophical importance, according to Schopenhauer. Our blind, compelling urge to copulate and produce offspring is a direct reflection of the restless, vibrant innermost reality of the world.

[1] See Lynn Margulis and Dorion Sagan, *Origins of Sex: Three billion Years of Genetic Recombination* (Yale University Press, New Haven, 1986) for a detailed, scientific account of this subject.

[2] From S. L. Washburn and Ruth Moore, *Ape Into Man: A Study of Human Evolution* (Little Brown and Company, Boston, 1974).

[3] See Elaine Morgan, *The Aquatic Ape: A Theory of Human Evolution* (Stein and Day/Publishers, New York, 1982).

[4] See Nancy Burley, "The Evolution of Concealed Ovulation," *American Naturalist 114*: 835-838, 1979.

[5] For a fascinating and informative account of this subject, see William Calvin, *The River that Flows Uphill: A Journey from the Big Bang to the Big Brain* (MacMillan Publishing Company, New York, 1986). See also Lee Berger's article in the *National Geographic*, August 1998 issue, titled "The Dawn of Humans: Redrawing Our Family Tree?"

[6] See Carl G. Jung, *Man and his Symbols* (Doubleday and Co., New York, 1964) and Pierre Grimal, *The Dictionary of Classical Mythology* (Basil Blackwell Publisher, Oxford, 1986).

[7] See the well-researched and beautifully illustrated book by Roger Lewin, *In the Age of Mankind* (Smithsonian Books, Washington, D.C., 1988) for a detailed discussion of this subject.

[8] For an excellent discussion of the relationship between consciousness, mythology, and Jungian psychology, see the relevant sections in Robert Donnington's *Wagner's Ring and Its Symbols: The Music and the Myth* (Faber and Faber, Boston, 1984).

[9] See William H. Masters, Virginia D. Johnson, Robert C. Kolodny, *Sex and Human Loving* (Little, Brown, Boston, 1986) and Robert J. Sternberg and Michael L. Barnes, Editors, *The Psychology of Love* (Yale University Press, New Haven, 1988).

[10] See "Mating for Life? It's Not for the Birds or the Bees," by Natalie Angier in the Science section of *The New York Times*, August 21, 1990.