

## THE ORIGIN OF GENDER AND SEXUAL REPRODUCTION [PART II]

Bert Thompson, Ph.D. and Brad Harrub, Ph.D.

[EDITOR'S NOTE: Part I of this two-part series appeared in the October issue. Part II follows below and continues, without introductory comments, where the first article ended.]

### THE 50% DISADVANTAGE

While sexual reproduction requires two parents, and therefore is neither as rapid nor as efficient as asexual reproduction, it does possess certain advantages—not the least of which is that species can benefit from the variability of mixing genetic material from two different parents. During sexual reproduction, organisms must produce haploid gametes (sperm or egg cells that contain half the diploid [the full complement] of chromosomes) in which meiotic division has occurred, in order to remove half of the genes. Then, when the gametes fuse (i.e., when the sperm fertilizes the egg), they produce a zygote—an amazing process that restores the diploid complement of chromosomes, with half coming from each parent.

In the end, sexual reproduction results in only **half** of a parent's genes being passed on to each of its progeny. British evolutionist Richard Dawkins of Oxford University described the process as follows: "Sexual reproduction is analogous to a roulette game in which the player throws away half his chips at each spin. **The existence of sexual reproduction really is a huge paradox**" (1986, p. 130, emp. added). Ask yourself this question: If organisms benefit by passing along their own genetic material, then why would these organisms "evolve" into a situation in which the reproduction process not only poses an enormous risk for genetic errors (through mistakes in DNA replication), but also replaces half of an organism's genetic material with that from another parental unit?

Sexual reproduction has a "selective disadvantage" of at least 50%—a disadvantage that will not budge! At conception, the zygote **receives** 50% of its genetic material from the father and 50% from the mother. However, by reproducing sexually, both the mother and father are required to **give up** 50% of their own genetic material. This leaves both parents at a disadvantage, because a full 50% of their own genetic material will not be passed on. But, as Harvard's Ernst Mayr has admitted: "No matter what the selective advantage of sexual reproduction may be, **that it does have such an advantage in animals is clearly indicated by the consistent failure of all attempts to return to asexuality**" (2001, p. 104, emp. added).

The conundrum of sexual reproduction leaves evolutionists completely baffled because the terms are permanently fixed and completely unyielding. Considering the possibility of potential mechanisms for reproduction, it remains to be determined why nature ever would "evolve" sexual reproduction in the first place. In his book, *Sex and Evolution*, George C. Williams commented on this "50% disadvantage."

The primary task for anyone wishing to show favorable selection of sex is to find a previously unsuspected 50% advantage to balance the 50% cost of meiosis. Anyone familiar with accepted evolutionary thought would realize what an unlikely sort of quest this is. We know that a net selective disadvantage of 1% would cause a gene to be lost rapidly in most populations, and [yet] sex has a known disadvantage of 50%. The problem has been examined by some of the most distinguished of evolutionary theorists, but they have either failed to find any reproductive advantage in sexual

reproduction, or have merely showed the formal possibility of weak advantages that would probably not be adequate to balance even modest recombinational load. Nothing remotely approaching an advantage that could balance the cost of meiosis has been suggested. **The impossibility of sex being an immediate reproductive adaptation in higher organisms would seem to be as firmly established a conclusion as can be found in current evolutionary thought. Yet this conclusion must surely be wrong. All around us are plant and animal populations with both asexual and sexual reproduction** (1975, p. 11, emp. added).

While evolutionists admit that sex is **dis**-advantageous to an individual (at a whopping 50% rate!), they nevertheless claim that it has some "evolutionary advantage" to the entire species. Therefore, they classify sex as an "altruistic" trait because it operates at an expense to the individual, yet is beneficial to the entire community. This "benefit" commonly is referred to as "diversity" by many evolutionists.

Early in the twentieth century, geneticists August Weismann, R.A. Fisher, and H.J. Muller elucidated the importance of diversity, stating: "Sex increases diversity, enabling a species to more rapidly adapt to changing environments and thereby avoid extinction" (as quoted in ReMine, 1993, p. 200) They believed this diversity allowed evolution to occur much more rapidly. At first, their idea appeared plausible and reasonable, and, in fact, was taught in an unchallenged fashion for several decades. Commenting on the altruism theory about the origin of sex, M.T. Ghiselin stated:

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Weismann explicitly stated that sex exists for the good of the species, and even though Lloyd Morgan pointed out the fallacy [as early as 1890], this view remained the dominant one for nearly 80 years. Why this should have happened is something of a puzzle. The view does have certain intuitive appeal, but that does not explain why it was not subjected to more critical scrutiny (1988, p. 11, bracketed item in orig.).

However, by the mid 1960s this explanation had been “subjected to a more critical scrutiny,” and eventually the idea of group selection overriding individual selection was shown to be false and thus was discarded.

Additionally, it was believed that sexual reproduction might “speed up” evolution. However, theorists soon realized that, from an evolutionary viewpoint, an organism’s “fitness” was damaged, not improved, as a result of sexual reproduction. Graham Bell pointed out:

Sex...does not merely reduce fitness, but halves it. If a reduction in fitness of a fraction of one percent can cripple a genotype, what will be the consequence of a reduction of 50 per cent? There can be only one answer: **sex will be powerfully selected against and rapidly eliminated wherever it appears. And yet this has not happened** (1982, pp. 77-78, emp. added).

Further scientific findings have caused researchers to do a 180-degree turn-around in their explanation of the evolutionary purpose of sex. It now is claimed that sex is advantageous, **not because it hastens evolution, but rather, because it slows it down.** The necessity in this change in direction was lamented by Bell:

To save the situation, then we must perform a complete volte-face [about-face—BT/BH]: just as it was self-evident to Weismann, Fisher and Muller that a faster rate of evolution would benefit a population, so we must now contrive to believe in the self-evident desirability of evolving slowly (p. 100).

This 180-degree about-face often is explained in the following manner. An asexual species is both too specialized and too dependent on its particular niche. As the niche vanishes, the species goes extinct. Asexual species thus inadvertently “adapt themselves out of existence” by refining a mode of life that is so restricted, it eventually disappears. Meanwhile, sexual species lag behind. Sex blunts the precision with which a species can adapt to a particular niche. Thus, according to evolutionists, sexual reproduction has “slowed down” evolution in order to prevent extinction. Considering the incredible difficulty involved in inventing a coherent theory about the origin of sex in the first place, and the vast smorgasbord of possible explanations avail-

able to try to explain sex, it is no wonder that we often find evolutionists disposing of one theory, only to replace it instantaneously with another.

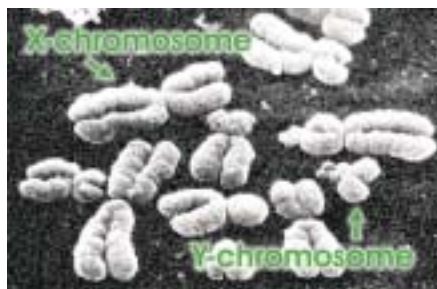
## MARS AND VENUS, OR X AND Y?

Modern self-help books would have us believe that men and women hail from “different planets,” so to speak. But what **really** separates them, we are told, are radically different chromosomes. These chromosomes contain the genetic material that differentiates males and females. In order for a change to occur from asexual reproduction to sexual reproduction, two things (at the very least) had to occur: (1) a **single sex** first had to “evolve” (so that it then could evolve into a second sex—all the while retaining the first); and (2) double homologous chromosomes also had to evolve.

But by what known method(s) could an **asexual** organism produce a **sexual** organism? And did you ever wonder: Which of the two sexes (male and female) evolved **first**? Well, wonder no more. Evolutionists somehow have “divined” the answer. As Jennifer Ackerman boldly put it: “**The female was the ancestral sex**, the first self-replicating organism; it gave rise to the male, a variant, and the two still share many characteristics” (2001, pp. 113-114, emp. added). Of course, Ms. Ackerman offered not a shred of scientific evidence for her audacious assertion—because there isn’t any! Upon hearing her statement, we cannot help but be reminded of the now-famous comment made by R.E. Dickerson several years ago in a special issue of *Scientific American* on evolution. Dr. Dickerson (who was addressing specifically the evolution of the intricate “genetic machinery” of the cell) boasted that since “there are no laboratory models, one can speculate endlessly, **unfettered by inconvenient facts**” (1978, 239[3]:85, emp. added). That also applies to the subject of the origin of sex. There are no adequate laboratory models; hence, Ms. Ackerman and her cohorts are free to “speculate endlessly, unfettered by inconvenient facts,” and to claim without any proof whatsoever that “the female was the ancestral sex.”

The second issue—the sudden appearance of double homologous chromosomes—presents no less of a problem. Why is this the case? Of the 46 human chromosomes, 44 are members of identical pairs, but two, the X and Y (generally referred to as the “sex chromosomes”), stand apart. Evolutionists thus are faced with the daunting challenge of explaining not only the origin of sex chromosomes themselves, but also the evolution of **two totally different sex chromosomes**—X and Y.

Human females possess two X chromosomes, while men possess one X and one Y. Some evolutionists (like Ackerman, quoted above) argue that the male Y chromosome somehow evolved from the female X chromosome. We know today that the X chromosome is the “home” for thousands of genes, while the Y has only a few dozen. Of those, only 19 are known to be shared by both X and Y. If, as evolutionists argue, the Y chromosome originally was identical to the X, then researchers have a great deal of work ahead of them in order to explain the fact that of the 19 shared genes, the X chromosomes possess all 19 on the tip of the short arm of the chromosome, whereas they are scattered across the entire length of the Y. Thus while both chromosomes do share certain genes, those genes are found in totally different places, indicating that the male Y chromosome is not simply an “evolved” X chromosome.



### DIFFERENCES AMONG VARIOUS SPECIES

In his book titled *Why Is Sex Fun?*, evolutionist Jared Diamond posed the question as to why men do not breast-feed babies. This problem caused Diamond to speculate:

Yes, it’s true that no male mammal has ever become pregnant, and that the great majority of male mammals normally don’t lactate. But one has to go further and ask why mammals evolved genes specifying that only females, not males, would develop the necessary anatomical equipment, the priming experience of pregnancy, and the necessary hormones. Both male and female pigeons secrete crop “milk” to nurse their squab; why not men as well as women? Among seahorses it’s the male rather than the female that becomes pregnant; why is that not also true for humans? (1997, p. 42).

We also do not question the fact that humans generally prefer to participate in sexual relations in private, whereas animals are indifferent to the presence of other animals or humans. Also of interest is the fact that most human women experience a complete shutdown of fertility somewhere between the ages of forty and fifty-five, whereas men do not. [Most animals do not experience a

shutdown of their reproductive facilities at a similar time period in their lives.] We frequently do not question certain practices—simply because they are commonplace and because we are accustomed to seeing things performed a certain way. But we must learn to ask ourselves two questions: (1) “How did something get that way in the first place?”; and (2) “Why is it that way?”

What causes some animals to breed, and then spend years caring for their young, while others leave their young to fend for themselves almost immediately after birth? The method and nature of reproduction, and the degree of parental care, varies widely among living organisms. With the stroke of their pen, scientists have grouped pollination, asexual budding, sexual reproduction, and viral replication under the same “reproductive” umbrella, all the while giving scant attention to the complexity and intricacy involved in these various forms of reproduction. Consider, for example, the dizzying array of samaras, pomes, nuts, pips, and just plain fluff produced by trees. Some of the seed designs are absolutely ingenious, and, truth be told, dwarf mankind’s attempts at engineering. Considering the odds of actual germination, it is no wonder we find that, in a bumper-crop year, the average oak can produce thousands of acorns, while an elm tree can produce tens of thousands of samaras (a dry, “winged” seed). Among plant species, however, problems occur that simply cannot be explained by normal evolutionary theory. While most of the higher plants are hermaphrodites (i.e., they bear both pollen and eggs), there are those species in which pollen and eggs exist in separate plants. Indeed, the suggestion that dioecy [the condition in which female and male flowers are borne on separate plants] allegedly has “evolved” from hermaphroditism [where both female and male reproductive organs are found on the same flower] is a central problem in evolutionary biology (see Ashman, 2000, p. 147).

Probably the most elaborate and showy courtship rituals belong to the bird family. Before mating season, many male birds grow colorful plumage that they use to “show-off” while attempting to attract a mate. Courtship

among reptiles frequently involves fighting among rival males during breeding season. Many produce loud noises, display vivid colors, or secrete pheromones (special scents) in an effort to communicate with and attract members of the opposite sex. Salmon, on the other hand, migrate to special spawning grounds during the breeding season. Often, these spawning grounds are located a great distance from normal feeding grounds because the young fish have different feeding requirements, compared to the adults. European eels also are known to travel great distances during their breeding periods to special spawning grounds in the Sargasso Sea. The reproductive habits of social insects revolve around a tightly knit colony that centers on a queen.

Other “sexual oddities” can be observed amidst the animal kingdom. Take, for example, two types of seals. Using the lineage provided by evolutionists, it would appear that these two species are quite similar, and thus could be expected to reproduce in a comparable fashion. However, harbor seals are monogamous, whereas male elephant seals may inseminate as many as 100 females during their lifetimes. But this is only the tip of the proverbial iceberg. The chart below demonstrates only a few of the reproductive differences observed in just four common farm animals.

The evolutionary “tree of life” does not demonstrate how these animals came to have gestation periods of different lengths, or varying estrus cycles, even though they allegedly have descended from the same “branch” (i.e., the mammals). Add to this mix the marsupial group (from the Latin *marsupium*—meaning “pouch”—since most of the marsupials, like the kangaroo, are endowed with some sort of pouch in which their prenatal young develop, thereby shortening the required gestation period), and evolutionists suddenly find themselves with a bewildering hodgepodge of complexity that is so incredibly puzzling, the simple lines and branches of their numerous guesses, hypotheses, and theories cannot even come close to explaining the history of sexual reproduction in living organisms.

	Cow	Ewe	Sow	Mare
Age at puberty	12 months	6 months	7 months	15 months
Length of estrus cycle	20-21 days	17 days	20-21 days	21 days
Duration of estrus	18 hours	30 hours	2-3 days	5-6 days
Time of ovulation	12-16 hours after end of estrus	end of estrus	40-44 hours after beginning of estrus	24-48 hours before end of estrus
Gestation length	283 days	148 days	114 days	336 days

## DIFFERENCES IN ANIMAL AND HUMAN SEXUALITY

Humans, unlike animals, do not copulate merely for reproductive purposes. Human females ovulate at only one point during their monthly cycle, but their bodies remain receptive throughout the entire month. This indicates that mating at all other times (i.e., outside of the ovulation period) has no procreative function. Thus, sexual relations in humans frequently are performed not for reproduction, but rather for enjoyment and pleasure. During sexual activity, the bodies of human males and females experience certain modifications and physiological changes that are not found in animals. Many of these represent modifications that account for the heightened stimulation and pleasure that occurs during copulation. If humans are indeed a product of evolution, why, then, are females receptive to copulation almost all of the time, whereas animals employing an estrus cycle are not? Additionally, why do female humans experience menopause (the cessation of ovulation, and thus fertility) as a regular phenomenon, which is not the norm for most wild animals? These are questions that evolutionists generally leave unasked, much less unanswered.

Genesis 31:35 indicates that the menstrual bleeding of females has been with humanity since at least the time of Jacob and Rachel (cf. also Leviticus 20:18). The menstrual cycle of human females is divided into two main phases: the follicular (or proliferative) phase, and the luteal (or secretory) phase. The follicular phase (during which estrogen levels rise) is characterized first by menstruation, and then by proliferation of the endometrial tissue. The ovarian cycle in female primates, however, consists of four stages: proestrus, estrus, metestrus, and diestrus. It is only in the second stage (estrus) that the female animal experiences a swelling of the vulva, during which various uterine processes occur that result in receptivity to copulation. Physically, a female primate is not able to receive a male unless she is in estrus. [The term “estrus” comes from the Greek meaning mad or frenetic desire, and generally is observed when female animals are “in heat.”] Thus, the period of sexual receptivity of the female monkey or ape is much more restricted than that of a human female.

The numerous differences that have been documented between estrus and menstrual cycles have caused evolutionists to formulate an attempted explanation for the human menstrual cycle. In 1993, Margie Profet, a self-taught evolutionary biologist, wrote a paper titled “Menstruation as a Defense Against Pathogens Transported by Sperm.” Profet claimed that various microbial infections—caused by

pathogen-toting spermatozoa—applied the adaptive pressure needed to cause menstruation. Simply put, she believed the male sperm cells carried disease-causing microorganisms that ultimately made it necessary for the female to slough off the walls of the uterus as a means of self-defense. While other theories had existed prior to Profet’s work, hers was the first to gain widespread scientific and public recognition. Three years later, anthropologist Beverly Strassmann, of the University of Michigan in Ann Arbor, submitted a critical review of Profet’s anti-pathogen hypothesis, and then proposed an alternative theory. She claimed that the reason the uterine endometrium is shed/reabsorbed in the cycle of regression and renewal is because it is energetically less costly than maintenance of the endometrium in an implantation state.

We will leave it up to our readers to determine whether these scientists are “serious” or “seriously grasping.” Suffice it to say that neither of these theories explains how or why the human female normally ovulates a single egg cell, instead of, say, five, six, seven, or more. They also do little to explain why human females routinely are sexually receptive, while animals are not. Anatomically speaking, how did humans “evolve” an anatomy that receives pleasure from sexual activity? **And why haven’t we “evolved” enjoyment from the variety of other activities that evolutionists say were passed down from our ape-like ancestors?**

Whereas God placed sexual relations only inside the marriage relationship (Hebrews 13:4), society has concluded that marriage and love are not prerequisites for sexual activity in humans. However, it should be noted when comparing human reproduction to that of animals, humans—married or unmarried—spend vast amounts of time, money, and energy in courtship and bonding prior to sexual relations. Can we observe animals courting members of the opposite sex for months or even years prior to having sexual relations? Commenting on the multiple facets that sex takes among humans, John Langone wrote:

Sex is normal human behavior, a powerful drive that we are all born with, as natural as hunger and thirst. It enables us to bring new life into the world, and at the same time it is pleasurable. One cannot deny that we are often first attracted sexually to the one we decide to spend a good deal of time with, even our entire lifetime. Sex, also, is closely tied to our very vitality, our physical and mental vigor, our capacity to grow and create and act (1980).

Are we to believe, as many evolutionists espouse, that the differences observed in human sexual relations are merely a product of culture and upbringing? If this is true, then

why do we find similar courting rituals in so-called “lost” civilizations that are protected from outside contact? Did humans “evolve” the ability to date, fall in love, and desire to be married to one individual for life?

## THE COMPLEXITY OF THE HUMAN REPRODUCTIVE SYSTEM

Consider just how sophisticated the human reproductive cycle must be in order to function correctly. During early juvenile years, humans experience a delayed sexual development phase in which reproduction does not occur. Is it by mere chance that our bodies are not able to reproduce at such a young age? Once this juvenile period is over, changes occur throughout the body, requiring simultaneous coordination of further development in many different types of tissues. Additionally, the production and regulation of gametes must be timed just right. Females also must endure a previously unknown monthly ovulation cycle, which allows for fertilization. Once fertilization takes place, the female body then must prepare itself for the many changes that occur during pregnancy. Are these carefully orchestrated processes mere happenstance?

While the male reproductive system may appear fairly simple, the true mechanics actually are quite complex. Unlike with other cells in the body, the production of sperm cells [spermatogenesis] does not occur at a temperature of 98.6°F/37°C (normal body temperature). Instead, it occurs at a somewhat reduced temperature. To facilitate this, the sperm-producing organs, or testes, are located outside the body cavity in the scrotum, allowing them to remain about 3°C cooler than the rest of the body. This special location allows for the production of millions of sperm cells, which are stored according to maturity and then delivered during sexual intercourse. Additionally, males possess a cremaster muscle, which involuntarily raises or lowers the scrotal sac (depending on environmental conditions) in order to maintain a constant testicular temperature. Are such things as the precise location and temperature regulation of the male testes just a fortuitous occurrence—or the product of an intelligent Creator?

Likewise, the female body has been designed in such a manner as to be receptive to sperm, while at the same time being able to protect the abdominal area from microorganisms in the environment. In addition, after producing eggs, the female reproductive system provides an environment in which a fertilized embryo can grow (keep in mind that the embryo does not possess its own individual blood supply, and therefore must

obtain its oxygen and nutrients from the mother's uterine wall). The uterus itself must be able to expand and hold the weight of an infant, plus the placenta and amniotic fluid—roughly 15 pounds—which is no small task. [Imagine a structure roughly the size of an orange able to expand and carry three, five-pound bags of sugar!]

After the child is born, the uterus returns to approximately its pre-pregnancy size, and then, amazingly, must be able to repeat this entire process all over again in one or more future pregnancies—again, no small feat. The female body likewise must orchestrate the production of suitable milk for the infant, in conjunction with the newborn's arrival. While we take many of these admittedly amazing feats for granted, science has yet to succeed in designing a machine that even comes close to mimicking actual biological reproduction.

Reproductive hormones also play a critical role in the orchestrated process of sexual development and reproduction. While certain hormones can be found in both males and females, their actions and target organs are totally different between the two sexes. Additionally, females possess reproductive hormones not found in males. Did these hormones also “just evolve?” The following represents a summary of the different hormones (found in males or females) that are required in order for human beings to be able to reproduce.

### Males

- Follicle-stimulating hormone—stimulates spermatogenesis
- Luteinizing hormone—stimulates the secretion of testosterone
- Testosterone—stimulates the development and maintenance of male secondary sexual characteristics

### Females

- Follicle-stimulating hormone—stimulates growth of ovarian follicle
- Luteinizing hormone—stimulates conversion of ovarian follicles into corpus luteum; stimulates secretion of estrogen
- Estrogen—stimulates development and maintenance of female secondary sexual characteristics; prompts monthly preparation of uterus for pregnancy
- Progesterone—completes preparation of uterus for pregnancy; helps maintain female secondary sexual characteristics
- Oxytocin—stimulates contraction of uterus; initiates milk release
- Prolactin—stimulates milk production

The levels and production of these various hormones must be maintained carefully, and must be regulated on a daily basis. Is this

complex, internal feedback mechanism—which is carried out primarily by the brain—purely a trait that was passed on from our alleged early sea-dwelling ancestors? If so, why is it, then, that those sea-dwelling organisms do not possess the same hormones? The complexity of the human reproductive system is practically incomprehensible. While scientists may try to “play God” in their attempts to create living humans in a laboratory setting, they still are far from creating egg and sperm cells and all of the necessary components associated with them.

### ANATOMICAL DIFFERENCES BETWEEN HUMAN MALES AND FEMALES

Any second-grade child easily could identify anatomical differences between the male and female species. However, these represent only **external** features. There also exist numerous **internal** differences. If we are to believe that sexual reproduction somehow evolved from asexual reproduction, this means that the gametes also evolved. Anatomically speaking, what is the probability of a female evolving an egg large enough to accept the genetic material from the male (so that the conceived embryo has an opportunity to grow), yet small enough that it can fit through her own fallopian tubes? Furthermore, the egg also must possess the capability of creating a protective barrier once that single sperm has penetrated the egg's cell wall, so that no other sperm can penetrate and add still more genetic material. And exactly how long in the “evolutionary scheme of things” did it take for a sperm cell to become small enough to actually be able to **fertilize** the egg, yet motile enough so that it could **reach** the egg?

Presented with all these anatomical differences, we must remember that each one also represents an entirely different type of cell that may or may not be present in the opposite sex. Yet evolutionists contend that all of this is merely a “historical accident.” Furthermore, the expense of producing **two** separate genders via such an accident would be extremely costly for the species. Consider, for example, the fact that males and females exist in approximately equal numbers. Scientifically speaking, it requires only a few fertile males to keep a species alive and thriving. From an evolutionary point of view, the expense of producing so many males would appear not only unnecessary, but also counterproductive. Steve Jones noted:

Biologists have an adolescent fascination with sex. Like teenagers, they are embarrassed by the subject because of their ignorance. **What sex is, why it evolved and how it works are the**



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**biggest unsolved problems in biology.** Sex must be important, as it is so expensive. If some creatures can manage with just females so that every individual produces copies of herself, why do so many bother with males? A female who gave them up might be able to produce twice as many daughters as before; and they would carry all of her genes. Instead, a sexual female wastes time, first in finding a mate and then in producing sons who carry only half of her inheritance. **We are still not certain why males exist**; and why, if we must have them at all, nature needs so many. Surely, one or two would be enough to impregnate all the females but, with few exceptions, the ratio of males to females remains stubbornly equal throughout the living world (1993, p. 84, emp. added).

But what is this great expense to which biologists continually refer? The anatomical differences observed in males and females go far beyond the external differences observed by the hypothetical second grader we mentioned earlier. Yet scientists admittedly are reluctant to examine these differences in light of evolutionary theory. The chart at the right presents a comparison of some of the anatomical differences between males and females, along with their primary functions.

Remember that each of these anatomical structures requires its own arterial and venous blood supply, as well as processes of nerve innervation that are not always apparent in the opposite sex. Additionally, many of these structures have their own specific lymphatic drainage. **How could the vascular and nervous tissues that support the male prostate have evolved from a female equivalent, since females do not even possess a prostate?** Did human beings continue to evolve in order to accommodate all the sexual and reproductive organs?

### CELLULAR DIFFERENCES BETWEEN HUMAN MALES AND FEMALES

The human sperm cell and egg cell have been optimized in totally different ways. The egg is nonmotile, covered by a protective coating, and carries a large nutrient supply for growth and development. Sperm cells, by contrast, are extremely motile, built solely for fertilization, and have been streamlined for delivering DNA to the egg. Evolutionists would have us believe that these differences resulted from millions of years of trial and error. However, in the case of reproduction, **sperm and egg cells that are not fully functional do not result in fertilization—thus the species would not be able to reproduce and therefore would become extinct**. How many generations of “error” would it take

MALE	
Organ	Primary Function
Penis	Erectile organ of copulation and urinary excretion
Testicle	Production of male sex hormones and sperm
Seminal Vesicles	Provide an alkaline fluid containing nutrients and prostaglandins
Ductus Deferens	Convey sperm to ejaculatory ducts
Prostate	Secretes alkaline fluid that helps neutralize acidic seminal fluid, and enhances motility of sperm
Epididymides	Storage and maturation of spermatozoa
Scrotum	Encloses and protects the testes
FEMALE	
Organ	Primary Function
Vagina	Organ of copulation, and passageway for fetus during parturition
Labia Major and Minor	Elongate vaginal canal and protect external genitalia
Clitoris	Erectile organ associated with feelings of pleasure during sexual stimulation
Ovary	Egg production and female sex hormones
Uterus	(Womb)—site of implantation; sustains life of the embryo
Uterine Tube	Convey egg or embryo toward uterus; common site of fertilization
Mammary Glands	Produce and secrete milk for nourishment of infant

in this trial-and-error period before all sexually reproducing animals died out? Are we to believe that these two totally different types of cells happened practically “overnight” by mere chance? Take a closer look at these two cells to determine if they are the products of chance—or the product of intelligent design.

Sperm cells are unlike any other cells in the body. They have been “stripped” of everything unnecessary for fertilization—thus they are not encumbered with things such as ribosomes, an endoplasmic reticulum, or a Golgi apparatus. However, the mitochondria (the powerhouses of the cell) have been arranged strategically in the center of the sperm cell, where they can most efficiently propel the flagellum. This long, whip-like organ is driven by dynein motor proteins that

use the energy of ATP (provided by all those mitochondria) to slide the microtubules inside the flagellum, thus bending certain portions of it. The head (or cap) of the sperm contains a specialized acrosomal vesicle, which contains hydrolytic enzymes that allow the sperm to penetrate the egg’s waxy outer layer. Without this special vesicle, the sperm cell would be unable to penetrate the coating of the egg cell. Upon contact with the egg, the contents of the acrosomal vesicle are released, and the sperm cell then is bound tightly to the egg so that the genetic material can be transferred (Alberts, et al., 1994, p. 1026). Production of these incredible cells continues throughout life. In a man, it takes about 24 days for a spermatocyte to complete meiosis in order to become a spermatid, and then another 5 weeks for a spermatid to develop into a mature sperm. Does this sound like something that occurred randomly overnight?

Egg cells, on the other hand, proliferate only in the fetus. These special cells undergo meiosis well before birth, but can remain in a “suspended” state for up to 50 years. So, while sperm cells are produced continually throughout a man’s lifetime, egg cells are produced only during fetal development (i.e., no more are made after the female baby is born). During this fetal production stage, enough eggs are produced to last an adult woman her entire life. The yolk, or egg cytoplasm, in these egg cells is rich in lipids, proteins, and polysaccharides. Egg cells also contain specialized secretory vesicles (located under the plasma membrane) that possess cortical granules. These granules alter the egg coat upon fertilization in order to prevent more than one sperm from fusing with the egg (Alberts, et al., p. 1022). Additionally, egg cell development (a developing egg is called an oocyte) occurs in timed stages after menses begins. Interestingly, while the general stages of oocyte development are similar, we know today that this process actually varies from species to species. How does the randomness concept associated with evolution explain these extremely complex cellular characteristics, or the differences seen among species? Homer Jacobson addressed just such problems when he wrote:

Directions for the reproduction of plans, for energy and the extraction of parts from the current environment, for the growth sequence, and for the effector mechanism translating instructions into growth—all had to be simultaneously present at that moment. **This combination of events has seemed an incredibly unlikely happenstance, and has often been ascribed to divine intervention** (1955, 43:12, emp. added).

## THE FUTURE OF HUMAN REPRODUCTION

During their investigation of the complexity of sexual reproduction at the cellular level, Bruce Alberts and his colleagues commented:

Whatever the origins of sex may be, it is striking that practically all complex present-day organisms have evolved largely through generations of sexual, rather than asexual reproduction. Asexual organisms, although plentiful, seem mostly to have remained simple and primitive (1994, p. 1013).

“Striking” indeed! All the while, we humans find ourselves on the verge of a reproductive shift—one that places evolutionists in the position of playing God, while simultaneously eluding the really tough questions.

There now can be no doubt that, within our lifetimes, we will witness sustained attempts at human cloning. Cloning already has occurred in several mammalian species, and it very likely is only a matter of time before some scientist announces the appearance of the first human clone. It is our personal belief that somewhere on this planet, a surrogate mother already is carrying the first cloned embryo—or will be shortly. In fact, Italian *in vitro* expert Severino Antinori announced on Friday, April 5, 2002, that a woman taking part in his controversial human cloning project already was eight weeks pregnant with a cloned embryo (see Daniel, 2002). Nineteen days later, on Wednesday, April 24, 2002, Dr. Antinori claimed that as of that date, three cloned pregnancies were in progress (see “Italian Scientist...,” 2002). Once we cross this threshold, human reproduction no longer will take place as God ordained, but will occur instead solely at the discretion of man (or woman!). [NOTE: Just as this issue of *Reason & Revelation* was about to go to press, researcher Orly Lacham-Kaplan at Monash University in Melbourne, Australia, announced that she had discovered a method by which to fertilize eggs using genetic material harvested from somatic (body) cells—**without the use of sperm** (see “Eggs Fertilised without Sperm,” 2002). The implications of such a procedure are obvious. As one news report observed, this process “could help lesbian couples to have baby girls that are genetically their own” (Highfield, 2002). This is what we meant when we commented that future human reproduction no longer will take place as God ordained, but will occur instead solely at the discretion of man (or woman!).]

Cloning bypasses the normal fertilization process between an egg and a sperm cell. Cloning allows scientists to take a mature body cell, subject it to harsh treatment so that it returns to an “embryonic” mode, and then

transfer that genetic material into an egg cell whose nucleus has been removed (leaving the egg empty, but healthy). Upon realizing that it no longer is in a hostile environment, the body cell “wakes up” and begins to develop—having forgotten where it came from and what it was on its way to becoming. As it begins to grow once more, it creates a whole new organism. This new organism then will be an exact **genetic** duplicate of the original body cell from which it was taken. But is this a safe and normal method of reproduction? Ask yourself what happens to all of the embryos that scientists use as they try to get the procedure “up and running.” How many failed human clones will have to be produced before we realize how morally bankrupt such a procedure really is? [For a brief look at humanity’s future from an evolutionist’s point of view, see Peter Ward’s 2001 book, *Future Evolution*, pp. 139-153.]



Micromanipulation of egg cell in preparation for cloning

Human reproduction was designed and created by God. During the activities of the Creation week (described in Genesis 1), it was only at the creation of man that a “divine conference” of the members of the Godhead occurred. Additionally, the Bible specifically denotes a **separate creation of males and females**. The sexes were not created simultaneously as in the case of the members of the animal kingdom. Genesis 1:26-27 records:

And God said, “Let us make man in our image, after our likeness: and let them have dominion over the fish of the sea, and over the birds of the heavens, and over the cattle, and over all the earth, and over every creeping thing that creepeth upon the earth.” And God created man in his own image, in the image of God created he him; **male and female created he them** (emp. added).

God commanded Adam and Eve to “be fruitful, and multiply, and replenish the earth, and subdue it; and have dominion over the fish of the sea, and over the birds of the heavens, and over every living thing that moveth upon the earth” (Genesis 1:28). This command came from the God Who spoke life into man, and Who designed humans and their

means of reproduction completely separate from the animals. Sexual reproduction is not merely the product of millions of years of evolution. **As these numerous examples of differences demonstrate, the highly complex and intricate manner in which the human body reproduces offspring is not a matter of mere chance or a “lucky role of the dice.” Rather, it is the product of an intelligent Designer.**

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## ANNOUNCING A NEW BOOK FOR CHILDREN: HOW DO YOU KNOW THE BIBLE IS FROM GOD?

In my “Note from the Editor” in the July 2002 issue of *Reason & Revelation*, I announced the latest offering from our very capable Director of Biblical Research, Kyle Butt—his new book on Christian evidences titled *A Matter of Fact* (the sequel to his best-selling volume, *Out With Doubt*). Both books were written specifically for young people in grades 7-12. It now gives me a great deal of pleasure to be able to announce Kyle’s most recent book—*How do You Know the Bible is from God?*—which he wrote especially for youngsters in grades 4-6.

What child—growing up in a home where God is revered and His Word is respected—has not asked the question: “Mom (or dad), how do you know the Bible is from God?” It’s a valid question. And it deserves an equally valid answer.

But what should be a parent’s (or teacher’s) response? If we really believe what the Bible says—that each Christians must “be ready to give a defense to everyone who asks you a reason for the hope that is in you...” (1 Peter 3:15)—then we should be able to sit down with a child and provide an answer that is based solidly on the available evidence.

It will not do to say simply, “Well, honey, we just ‘know’ in our heart that the Bible is God’s Word,” or “Well, we’ve always been taught, and we’ve always believed, that the Bible is the Word of God.” Those are not appropriate, or adequate, answers for a young, inquiring, impressionable, sponge-like mind. We must do better. And every single child who bothers to ask the question deserves better! *How do You Know the Bible is from God?* was written to help parents and teachers “do better,” and to give each and every child the answer he or she deserves to such a vitally important question.

The publication of this particular book represents a significant milestone in the history of Apologetics Press. It not only is the very first book we have published in a hardback version, but also is the very first book we have published completely in full color throughout! It is indeed a thing of beauty to behold.

Children will delight at being able to see exactly how the Bible made its way down to us through the millennia. And what a fascinating and circuitous journey it has been—as this book makes compellingly clear.

In its thirteen chapters covering thirty-six pages, *How do You Know the Bible is from God?* examines such topics as “the special Book,” ancient writing materials, did the Bible come from God?, the Bible predicts the future, how did we get the Old Testament?, how did we get the New Testament?, which books belong in the Bible?, what is a translation?, are there mistakes in the Bible?, the Old Testament, the New Testament, does the Bible lie?, and counting the cost. The last page of the book is an easy-to-read, concise timeline of biblical events—from the “paradise lost” of Genesis 1, to the “paradise regained” of the book of Revelation. There are questions and activities to go with each of the chapters.

In addition, the book is filled with gorgeous photographs, illustrative diagrams, youngster-oriented clip-art, intriguing charts, etc. Children will thrill to the incredible-but-true stories of how God’s Word came down to us through the ages. And they will have such terrific fun reading and studying this book, they won’t even realize how much—or how fast—they are learning!

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**Bert Thompson**

