

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

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

[EDITOR'S NOTE: Evolutionary theory continues to be plagued by persistent problems that defy solution via rational thought. This is true whether one examines the origin of the Universe—or the origin of life. But nowhere is the glaring inadequacy of evolutionary theory more evident than in its feeble and failed attempts to explain the origin of sex. The pervasive presence of the male and female sexes (whether in plants, animals, or humans), and the ubiquitous nature of sexual reproduction based on differences in gender, deftly defy any naturalistic explanation. This two-part series of articles will examine topics of a potentially sensitive nature (due to the subject matter under review). However, Dr. Harrub and I want to assure each of our readers that we have absolutely no intention of stooping to “street slang” to do so. Appropriate medical terminology will be employed, and the discussion of the issues involved will be carried out in a straightforward, scientific, and respectful manner. We invite your attention to this investigation of the “Achilles’ heel” of evolution.]

The advertisement indicates that this particular “ovulation predictor kit” is “the only technology based solely on hormone monitoring that provides you with personalized daily fertility information for pregnancy planning.” For around fifty dollars, a person can purchase this product, which is intended as an aid in determining the optimum moment for a human female to conceive.

Viewing this scenario through the eyes of a baboon, the advertisement would seem to indicate that baboons are a somewhat “superior” species when compared to humans. A female baboon, for example, does not need a “predictor kit” to monitor her hormones or detect her period of ovulation. Instead, she gives off a distinctive smell, and the skin

surrounding her genital area swells and turns a bright red color that is visible to a male from some distance. Most other female animals are equally aware of their own ovulation, and often will “advertise” it to males using visual signals, odors, or behaviors. The question becomes: Whence did these differences in physiology and behavior originate? Or, to put it more bluntly: How did sex evolve?

Take a look around. The world surrounding you is literally teeming with living organisms ranging in size from microscopic bacteria to giant California redwoods. But how did it all get here? One of the first thoughtful questions children often ask is, “Where did I come from?” If we were to allow evolutionists to answer this question, they would point to various fragments from the fossil record and confidently declare that humans have descended from an ancient ape-like ancestor. Evolutionists have spent many decades trying to iron out a seamless sequence of descendants in their so-called “evolutionary tree of life.” However, one of the most glaring failures of this alleged lineage is its inability to account for the origin of sexual (as opposed to asexual) reproduction, and the existence of a male and female within each species that reproduces sexually.

Biology texts are quick to illustrate amoebas evolving into intermediate organisms, which then conveniently give rise to amphibians, reptiles, mammals, and, eventually, humans. Yet, interestingly, we never learn exactly when (or how!) independent male and female species “evolved.” Somewhere along this evolutionary path, both males and females were required in order to ensure the procreation that was necessary to further the existence of a particular species. But how do

evolutionists explain this? When pressed to answer questions such as, “Where did males and females actually come from?” or “What is the evolutionary origin of sex?” evolutionists become as silent as the tomb in which they have laid this perennial problem. How is it that, at one point in time, “nature” was able to evolve a female member of a species that produces eggs and is internally equipped to nourish a growing embryo, while at the same time evolving a male member that produces motile sperm cells? And, further, how is it that these gametes (eggs and sperm) conveniently “evolved” so that they each contain **half** the normal chromosome number of somatic (body) cells? [Somatic cells reproduce via the process of **mitosis**, which maintains the species’ standard chromosome number; gametes are produced via the process of **meiosis**, which halves that number. We will have more to say about both processes later.]

The evolution of sex (and its accompanying reproductive capability) is not always a favorite topic of discussion in many evolutionary circles, because no matter how many theories and proposals evolutionists conjure up (and there are several), they still must surmount the enormous hurdle of explaining the origin of the first fully functional female and the first fully functional male necessary to begin the process. In his book, *The Masterpiece of Nature: The Evolution of Genetics and Sexuality*, Graham Bell described the dilemma in the following manner:

Sex is the queen of problems in evolutionary biology. Perhaps no other natural phenomenon has aroused so much interest; certainly none has sowed as much confusion. The insights of Darwin and Mendel, which have illuminated so many mysteries, have so far failed to shed more than a dim and

# CONTENTS

## ARTICLES

- The Origin of Gender and Sexual Reproduction [Part I]*  
Bert Thompson and Brad Harrub. . . 73

## DEPARTMENTS

- Speaking Schedules. . . . . 77

### Note from the Editor

- Announcing: The New Rock-Solid Faith: How to Sustain It Video Series*  
Bert Thompson . . . . . 80

## RESOURCES

- Look Who's Talking*. . . . . 37-R  
Questions and Answers. . . . . 40-R  
In the News. . . . . 40-R

**Reason & Revelation** is published monthly by Apologetics Press, Inc., a non-profit, tax-exempt work dedicated to the defense of New Testament Christianity. Copyright © 2002. All rights reserved.

### Editor:

Bert Thompson, Ph.D.\*  
(\*Microbiology, Texas A&M University)

### Associate Editor:

Brad Harrub, Ph.D.\*  
(\*Neurobiology, University of Tennessee)

### Annual Subscription Rates:

- \$ 8.00 Domestic
- \$ 6.50 Domestic Bulk (5+ to same address)
- \$13.00 Canada & Overseas Airmail

### Mailing Address:

Apologetics Press, Inc.  
230 Landmark Drive  
Montgomery, AL 36117-2752

### General inquiries, changes of address, or international callers:

Phone: (334) 272-8558  
Fax: (334) 270-2002

### Orders:

Phone: (800) 234-8558  
Fax: (800) 234-2882

**On-line** Web store/catalog, subscription order/renewal form, current issues, archives, and other information (all orders processed on a secure server):

URL: [www.ApologeticsPress.org](http://www.ApologeticsPress.org)  
E-mail: [mail@ApologeticsPress.org](mailto:mail@ApologeticsPress.org)

### Discovery—Scripture & Science for Kids

is a sister publication for children. For more information, please contact our offices or visit the Discovery Web site at:

URL: [www.DiscoveryMagazine.com](http://www.DiscoveryMagazine.com)

wavering light on the central mystery of sexuality, emphasizing its obscurity by its very isolation (1982, p. 19).

The same year that Bell released his book, well-known evolutionist Philip Kitcher noted: "Despite some ingenious suggestions by orthodox Darwinians, there is no convincing Darwinian history for the emergence of sexual reproduction" (1982, p. 54). Evolutionists since have freely admitted that the origin of gender and sexual reproduction still remains one of the most difficult problems in biology (see, for example, Maynard-Smith, 1986, p. 35). In his 2001 book, *The Cooperative Gene*, evolutionist Mark Ridley wrote (under the chapter title of "The Ultimate Existential Absurdity"):

Evolutionary biologists are much teased for their obsession with why sex exists. People like to ask, in an amused way, "isn't it obvious?" Joking apart, it is far from obvious.... Sex is a puzzle that has not yet been solved; no one knows why it exists (pp. 108, 111, emp. added).

In an article in *Bioscience* on "How Did Sex Come About?," Julie Schechter remarked:

Sex is ubiquitous.... Yet sex remains a mystery to researchers, to say nothing of the rest of the population. Why sex? At first blush, its disadvantages seem to outweigh its benefits. After all, a parent that reproduces sexually gives only one-half its genes to its offspring, whereas an organism that reproduces by dividing passes on all its genes. Sex also takes much longer and requires more energy than simple division. Why did a process so blatantly unprofitable to its earliest practitioners become so widespread? (1984, 34:680).

Why sex? Why indeed?! We invite you to read further as we survey several issues concerning the origin of gender and sexual reproduction.

### "INTELLECTUAL MISCHIEF AND CONFUSION"—OR INTELLIGENT DESIGN?

The distinguished microbiologist of the University of Massachusetts at Amherst, Lynn Margulis, and her son Dorion Sagan (Ms. Margulis is one of the late Carl Sagan's three wives; Dorion is their son), have gone on record as stating: "Many theories of sex are clearly fallacious.... Putting these ideas of sexual origins together, our hypothesis is quite different from the accepted wisdom about the role of sex in evolution" (1997, pp. 290, 293). Indeed it is! To quote them: "...[C]omplex microscopic beings and their descendants developed the first male and female genders, and our kind of cell-fusing sexuality involving penetration of an egg by a sperm" (p. 78). In his 2001 book, *Liaisons of Life*, Tom Wakeford addressed this unorthodox idea and concluded:

Margulis's hypothesis for the origin of sexuality is radical. She believes that the ecological relations of ancient microbes drove a process that ultimately led to our way of reproducing. She bases this ambitious idea on a theory she published in 1967. Now classic, the theory attempted to explain the biggest missing link in evolution—the jump from bacteria (often called prokaryotes), all of which lack nuclei, to modern cells, or eukaryotes, whose cells contain nuclei....

Unlike many other transitions in evolution, there are no intermediates between eukaryotes and prokaryotes. It is as if honeybees mutated into humans without any evidence of rats, cats, or chimpanzees in between. The evolutionary processes behind this great revolution have had to be discerned without the help of one of the evolutionist's most trusted sources of evidence—the fossil record (pp. 147-148).

Perhaps it is this complete lack of evidence that has caused Margulis and Sagan to suggest that since sex is basically a historical mishap of sorts—a kind of "accidental holdover" from the era of single-celled organisms—then its maintenance is therefore a "nonscientific" question that "leads to intellectual mischief and confusion" (as quoted in Crow, 1988, pp. 59-60).

While there may well be many "clearly fallacious" theories regarding the origin of sex, and while the fact that sex exists may indeed represent to evolutionists a matter of "intellectual mischief and confusion," the fact of both the ubiquity and the complexity of sexual reproduction has not eluded Darwinists. Niles Eldredge, a staunch evolutionist at the American Museum of Natural History, has admitted that "sex occurs in all major groups of life" (Eldredge and Cracraft, 1980, p. 102). Or as Jennifer Ackerman wrote somewhat emphatically in her 2001 book, *Chance in the House of Fate*: "Now, it seems, nature hurls the sexes at each other" (p. 49, emp. added).

But why is this the case? Evolutionists have practically been forced to concede that there must be "some advantage" to a system as physiologically and energetically complex as sex—as Mark Ridley admitted when he wrote: "...[I]t is highly likely that sex has some advantage, and that the advantage is big. Sex would not have evolved, and been retained, unless it had some advantage" (2001, p. 254, emp. added). Yet finding and explaining that advantage seems to have eluded our evolutionary colleagues. Sir John Maddox, who served for over twenty-five years as the distinguished editor of *Nature*, the prestigious journal published by the British Association for the Advancement of Science (and who

was knighted by Queen Elizabeth II in 1994 for “multiple contributions to science”), authored an amazing book titled *What Remains to be Discovered* in which he addressed the topic of the origin of sex, and stated forthrightly:

The overriding question is when (and then how) sexual reproduction itself evolved. **Despite decades of speculation, we do not know.** The difficulty is that sexual reproduction creates complexity of the genome and the need for a separate mechanism for producing gametes. The metabolic cost of maintaining this system is huge, as is that of providing the organs specialized for sexual reproduction (the uterus of mammalian females, for example). What are the offsetting benefits? **The advantages of sexual reproduction are not obvious** (1998, p. 252, emp. added, parenthetical item in orig.).

The fact that the advantages of sex “are not obvious” is well known (though perhaps not oft-discussed) within the hallowed halls of academia. J.C. Crow lamented:

Sexual reproduction seems like a lot of baggage to carry along if it is functionless. Evolutionary conservatism perpetuates relics, but does it do so on such a grand scale as this?... It is difficult to see how a process as elaborate, ubiquitous, and expensive as sexual reproduction has been maintained without serving some important purpose of its own (1988, p. 60).

What is that “purpose”? And how can evolution (via natural selection) explain it? Would “Nature” (notice the capital “N”) “select for” sexual reproduction? As it turns out, the common “survival of the fittest” mentality cannot begin to explain the high cost of first evolving, and then maintaining, the sexual apparatus. Sexual reproduction requires organisms first to produce, and then maintain, gametes (reproductive cells—i.e., sperm and eggs).



Photomicrograph of male sperm cell attempting penetration of female egg cell

Additionally, various kinds of incompatibility factors (such as the blood Rh factor between mother and child) pass along more “costs” (some of which can be life threatening) that are automatically inherent in this “expensive” means of reproduction. In sex-

ual organisms, problems also can arise in regard to tissue rejection between the mother and the newly formed embryo. The human immune system is vigilant in identifying foreign tissue (such as an embryo that carries half of the male’s genetic information), yet evolutionists contend that the human reproductive system has “selectively evolved” this “elaborate, ubiquitous, and expensive” method of reproduction. In trying to reconcile the logic behind what causes such things to occur via naturalistic evolution, vitalist philosopher Arthur Koestler observed:

Once upon a time it all looked so simple. Nature regarded the fit with the carrot of survival and punished the unfit with the stick of extinction. The trouble only started when it came to defining “fitness”.... Thus natural selection looks after the survival and reproduction of the fittest, and the fittest are those which have the highest rate of reproduction—we are caught in a circular argument which completely begs the question of what makes evolution evolve? (1978, p. 170).

The question of “what makes evolution evolve” is especially critical when it comes to the origin of sex and sexual reproduction. As Dr. Maddox went on to say: “Much more must be learned of the course of evolution before it is known how (rather than why) sexual reproduction evolved.... That task will require intricate work by future generations of biologists” (pp. 253,254, parenthetical item in orig.).

It is our contention, based on the evidence, that **the intricacy, complexity, and informational content associated with sexual reproduction demand the conclusion that sex is neither a “historical accident” resulting in evolutionary baggage, nor a product of organic evolution itself, but rather is the product of an intelligent Creator.**

#### FROM ASEXUAL TO SEXUAL REPRODUCTION —THE ORIGIN OF SEX

**M**any single-celled organisms reproduce asexually. If we all descended from these single-celled creatures, as Margulis and Sagan have suggested, then why was the simple-yet-efficient method of asexual reproduction set aside in favor of sexual reproduction? Dobzhansky and his co-authors commented on this ironic difficulty in their book, *Evolution*:

With respect to the origin of sexual reproduction, two challenging questions present themselves. First, in what kinds of organisms did sex first arise? And second, what was the adaptive advantage that caused sexual reproduction to become predominant in higher organisms? (1977, p. 391).

**Asexual** reproduction is the formation of new individuals from cells of only one parent, without gamete formation or fertilization by another member of the species. Asexual reproduction thus does not require one egg-producing parent and one sperm-producing parent. A single parent is all that is required. **Sporulation** (the formation of spores) is one method of asexual reproduction among protozoa and certain plants. A spore is a reproductive cell that produces a new organism without fertilization. In certain lower forms of animals (e.g., hydra), and in yeasts, **budding** is a common form of asexual reproduction as a small protuberance on the surface of the parent cell increases in size until a wall forms to separate the new individual (the bud) from the parent. **Regeneration** is another form of asexual reproduction that allows organisms (e.g. starfish and salamanders) to replace injured or lost parts.



An example of the asexual reproduction process known as budding

As they have struggled to explain the existence of **sexual** reproduction in nature, evolutionists have suggested four different (and sometimes contradictory) theories, known in the literature as: (1) the Lottery Principle; (2) the Tangled Bank Hypothesis; (3) the Red Queen Hypothesis; and (4) the DNA Repair Hypothesis. We would like to discuss each briefly.

#### The Lottery Principle

The Lottery Principle was first suggested by American biologist George C. Williams in his monograph, *Sex and Evolution* (1975). Williams’ idea was that sexual reproduction introduced genetic variety in order to enable genes to survive in changing or novel environments. He used the lottery analogy to get across the concept that breeding **asexually** would be like buying a large number of tickets for a national lottery but giving them all the same number. **Sexual** reproduction, on the other hand, would be like purchasing a small number of tickets, but giving each of them a different number.

The essential idea behind the Lottery Principle is that since sex introduces variability, organisms would have a better chance of pro-

ducing offspring that will survive if they reproduce a range of types rather than merely more of the same. The point being made by those who advocate the Lottery Principle is that, in their view, asexual reproduction is poorly equipped to adapt to rapidly changing environmental conditions due to the fact that the offspring are exact duplicates (i.e., clones) of their parents, and thus inherently possess less genetic variation—variation that ultimately could lead to radically improved adaptability and a much greater likelihood of survival). As Carl Zimmer wrote under the title of “Evolution from Within” in his volume, *Parasite Rex*: “A line of clones might do well enough in a forest, but what if that forest changed over a few centuries to a prairie? Sex brought the variations that could allow organisms to survive change” (2000, p. 163). Matt Ridley added:

...[A] sexual form of life will reproduce at only half the rate of an equivalent clonal form. The halved reproductive rate of sexual forms is probably made up for by a **difference in quality: the average sexual offspring is probably twice as good as an equivalent cloned offspring** (1993, p. 254, emp. added).

It would be “twice as good,” of course, because it had twice the genetic endowment (having received half from each of the two parents). As Reichenbach and Anderson summarized the issue:

For example, why do most animals reproduce sexually rather than asexually, when asexual reproduction seems to conform best to the current theory that in natural selection the fittest are those that preserve their genes by passing them on to their progeny? One theory is that sexual reproduction provides the best defense against the rapidly reproducing, infectious species that threaten the existence of organisms. The **diversity in the species** that results from combining different gene pools favors the survival of those that are sexually reproduced over those that by cloning inherit repetitive genetic similarity (1995, p. 18, emp. added).

It is that “diversity in the species,” according to the principle, which helps an organism maintain its competitive edge in nature’s struggle of “survival of the fittest.” But the Lottery Principle has fallen on hard times of late. It suggests that sex would be favored by a **variable** environment, yet a close inspection of the global distribution of sex reveals that where environments are **stable** (such as in the tropics), **sexual** reproduction is most common. In contrast, in areas where the environment is **unstable** (such as at high altitudes or in small bodies of water), **asexual** reproduction is rife.

## The Tangled Bank Hypothesis

The Tangled Bank Hypothesis suggests that sex evolved in order to prepare offspring for the complicated world around them. The “tangled bank” phraseology comes from the last paragraph of Darwin’s *Origin of Species*, in which he referred to a wide assortment of creatures all competing for light and food on a “tangled bank.” According to this concept, in any environment where there exists intense competition for space, food, and other resources, a premium is placed on diversification. As Zimmer described it:

In any environment—a tidal flat, a forest canopy, a deep-sea hydrothermal vent—the space is divided into different niches where different skills are needed for survival. A clone specialized for one niche can give birth only to offspring that can also handle the same niche. But sex shuffles the genetic deck and deals the offspring different hands. It’s basically spreading out progeny so that they’re using different resources (2000, p. 163).

The Tangled Bank Hypothesis, however, also has fallen on hard times. In his book, *Evolution and Human Behavior*, John Cartwright concluded:

Although once popular, the tangled bank hypothesis now seems to face many problems, and former adherents are falling away. The theory would predict a greater interest in sex among animals that produce lots of small offspring that compete with each other. In fact, sex is invariably associated with organisms that produce a few large offspring, whereas organisms producing small offspring frequently engage in parthenogenesis [asexual reproduction—BT/BH]. In addition, **the evidence from fossils suggests that species go for vast periods of [geologic] time without changing much** (2000, p. 96, emp. added).

Indeed, the evidence **does** suggest “that species go for vast periods of time without changing much.” Consider the following admission in light of that point. According to Margulis and Sagan, bacteria “evolved” in such a fashion as to ultimately be responsible for sexual reproduction. Yet if that is the case, why, then, have the bacteria themselves remained virtually unchanged—from an evolutionary viewpoint—for billions of years of Earth history? In his book, *Evolution of Living Organisms*, the eminent French zoologist, Pierre-Paul Grassé, raised this very point.

[B]acteria, despite their great production of intraspecific varieties, **exhibit a great fidelity to their species**. The bacillus *Escherichia coli*, whose mutants have been studied very carefully, is the best example. **The reader will agree that it is surprising, to say the least,**

**to want to prove evolution and to discover its mechanisms and then to choose as a material for this study a being which practically stabilized a billion years ago** (1977, p. 87, emp. added).

Additionally, it should be noted that today we still see organisms that reproduce asexually, as well as organisms that reproduce sexually—which raises the obvious question: Why do some organisms continue to reproduce asexually, while others have “evolved” the ability to reproduce sexually? Don’t the asexual organisms ever “need” genetic variety in order to enable genes to survive in changing or novel environments (the Lottery Principle)? Don’t they ever “need” to prepare their offspring for the complicated world around them (the Tangled Bank Hypothesis)?

## The Red Queen Hypothesis

The Red Queen Hypothesis was first suggested by Leigh Van Valen in an article titled “A New Evolutionary Law” in *Evolutionary Theory* (1973). His research suggested that the probability of organisms becoming extinct bears no relationship to how long they already may have survived. In other words, as Cartwright put it: “It is a sobering thought that the struggle for existence never gets any easier; however well adapted an animal may become, it still has the same chance of extinction as a newly formed species” (p. 97). Biologists came to refer to the concept as the Red Queen Hypothesis, named after the character in Lewis Carroll’s *Through the Looking Glass* who took Alice on a lengthy run that actually went nowhere. As the queen said to poor Alice, “Now, here, you see, it takes all the running you can do, to keep in the same place.” Think of it as a “genetics arms race” in which an animal constantly must run the genetic gauntlet of being able to chase its prey, elude predators, and resist infection from disease-causing organisms. In the world of the Red Queen, organisms have to run fast—just to stay still! That is to say, they constantly have to “run to try to improve” (and the development of sex would be one way of accomplishing that). Yet doing so provides no automatic guarantee of winning the struggle known as “survival of the fittest.” “Nature,” said the eminent British poet Lord Tennyson, is “red in tooth and claw.” Currently, the Red Queen Hypothesis seems to be the favorite of evolutionists worldwide in attempting to explain the reason as to the “why” of sex.

## The DNA Repair Hypothesis

Think about this. Why are babies born young? Stupid question—with a self-evident answer, right? Evolutionists suggest otherwise. The point of the question is this. Our

somatic (body) cells age. Yet cells of a newborn have had their clocks “set back.” Somatic cells die, but the germ line seems to be practically immortal. Why is this the case? How can “old” people produce “young” babies? In a landmark article published in 1989, Bernstein, Hopf, and Michod suggested that they had discovered the answer:

We argue that the lack of ageing of the germ line results mainly from repair of the genetic material by meiotic recombination during the formation of germ cells. Thus our basic hypothesis is that the primary function of sex is to repair the genetic material of the germ line (p. 4).

DNA can be damaged in at least two ways. First, ionizing radiation or mutagenic chemicals can alter the genetic code. Or, second, a mutation can occur via errors during the replication process itself. Most mutations are deleterious (see Cartwright, 2000, p. 98). In an asexual organism, by definition, any mutation that occurs in one generation will be passed on automatically to the next. In his book, *The Red Queen* (1993), Matt Ridley compared it to what occurs when you photocopy a document, then photocopy the photocopy, and then photocopy that photocopy, etc. Eventually, the quality deteriorates severely. Asexual organisms, as they continue to accumulate mutations, face the unpleasant prospect of eventually becoming both unable to reproduce and unviable—neither of which would be at all helpful to evolution.

But if sex “evolved,” it would help solve this problem since mutations, although they might still be passed on from one generation to the next, would not necessarily be **expressed** in the next generation (a mutation must appear in the genes of **both** parents before it is expressed in the offspring). As Cartwright put it:

In sexually reproducing species on the other hand, some individuals will be “unlucky” and have a greater share than average of deleterious mutations in their genome, and some will be “lucky,” with a smaller share. The unlucky ones will be selected out. This in the long term has the effect of constantly weeding out harmful mutations through the death of those that bear them.... Deleterious mutations... would have devastating consequences if it were not for sexual reproduction (p. 99).

But, as Cartwright went on to admit: “This theory is not without its problems and critics” (p. 99). One of those problems, expressed by Mark Ridley (no kin to Matt), is: “We do not know for sure that sex exists to purge bad genes” (2001, p. 254). No, we certainly do not! And, in fact, evidence is beginning to mount that perhaps the DNA Repair Hypothesis is itself in need of “repair.” As Sir John Maddox noted:

One view is that sexual reproduction makes it easier for an evolving organism to get rid of deleterious changes. That should certainly be the case if there is more than one genetic change and if their combined effect on the fitness of the evolving organisms is greater than

the sum of their individual changes acting separately. **But there is no direct evidence to show that this rule is generally applicable** (1998, p. 252, emp. added).

We must not overlook an important fact throughout all of this: These theories valiantly attempt to explain **why sex exists now**, but they do not explain **the origin** of sex. How, exactly, did nature accomplish the “invention” of the marvelous process we know as sex? In addressing this very issue, Maddox asked quizzically:

How did this process (and its complexities) evolve?... The dilemma is that **natural selection cannot anticipate changes in the environment**, and so arrange for the development of specialized sexual organs as a safeguard against environmental change (p. 253, emp. added, parenthetical item in orig.).

Exactly our point! It is one thing to develop a theory or hypothesis to explain something that **already exists**, but it is entirely another to develop a theory or hypothesis to explain **why** that something (in this case, sex) **does exist**. As Mark Ridley begrudgingly admitted: “Sex is not used simply for want of an alternative. Nothing, in an evolutionary sense, **forces** organisms to reproduce sexually” (p. 109, emp. added).

Perhaps Cartwright summarized the issue well when he said: “There is perhaps no single explanation for the maintenance of sex in the face of severe cost” (p. 99). Since he is speaking of a “naturalistic” explanation, we would agree wholeheartedly. But we would go even farther to state that there is **no naturalistic explanation at all for the origin or maintenance of sex**.

## WHY SEX?

**W**hy, then, does sex exist? In his 2001 book, *Evolution: The Triumph of an Idea*, Carl Zimmer admitted:

Sex is not only unnecessary, but **it ought to be a recipe for evolutionary disaster**. For one thing, it is an inefficient way to reproduce.... And sex carries other costs as well.... By all rights, any group of animals that evolves sexual reproduction should be promptly outcompeted by nonsexual ones. **And yet sex reigns....** Why is sex a success, despite all its disadvantages? (pp. 230, 231, emp. added).

From an evolutionary viewpoint, sex definitely is “an inefficient way to reproduce.” Think about all the sexual process entails, including the complexity involved in reproducing the information carried within the DNA. It is the complexity of this process, and the manner in which it is copied from generation to generation, which practically drove Mark Ridley to distraction in *The Cooperative Gene*.



<b>Dr. Bert Thompson</b>		
October 11-13	Florence, KY	(859) 283-2355
October 18-20	Saline, MI	(734) 429-9160
<b>Dr. Brad Harrub</b>		
October 25-27	Hopewell, VA	(804) 458-3563
November 1-3	Muskogee, OK	(918) 682-6382
<b>Dr. Dave Miller</b>		
October 4-6	Fayetteville, TN	(931) 433-2587
October 18-20	Memphis, TN	(901) 743-0464
<b>Kyle Butt</b>		
October 6	Arab, AL	(256) 586-8158
October 11-13	Mt. Pleasant, TN	(931) 379-4420
<b>Eric Lyons</b>		
October 11-13	Mt. Pleasant, TN	(931) 379-4420
November 1-3	Muskogee, OK	(918) 682-6382

No one in human culture would try the trick of first making two copies of a message, then breaking each into short bits at random, combining equal amounts from the two to form the version to be transmitted, and throwing the unused half away. **You only have to think of sex to see how absurd it is.** The “sexual” method of reading a book would be to buy two copies, rip the pages out, and make a new copy by combining half the pages from one and half from the other, tossing a coin at each page to decide which original to take the page from and which to throw away (pp. 108-109, emp. added).

Again, from an evolutionary viewpoint, sex would be considered “absurd.” But from a **design** viewpoint, it is nothing short of incredible!

Yet there is an even more important question than **why** sex exists. **How** did sex come to exist? Evolution is dependent on change (the English word “evolution” derives from the Latin *evolvere*, meaning “to unroll, to change”). Quite obviously, if everything remained the same, there would be no evolution. Evolutionists believe that the driving forces behind evolution are natural selection and genetic mutations occurring over lengthy spans of geologic time (as Peter Ward put it in his 2001 book, *Future Evolution*, “Evolution takes time,” p. 153). Mutations are primarily the result of **mistakes** that occur during DNA replication. There are three different types of mutations: beneficial, deleterious, and neutral (see Mayr, 2001, p. 98). Neutral mutations (which admittedly do occur) are, as their name implies, “neutral.” They do not “propel” evolution forward in any significant fashion. Deleterious mutations “will be selected against and will be eliminated in due time” (Mayr, p. 98). That, then, leaves beneficial mutations, which, according to evolutionists, are incorporated into the species by natural selection, eventually resulting in new and different organisms.

But what does all of this have to do with the origin of sex? Evolutionists adhere to the view that the first organisms on Earth were **asexual**, and thus they believe that, during billions of years of Earth history, asexual organisms experienced numerous beneficial mutations that caused them to evolve into **sexual** organisms. But the change of a single-celled, asexual prokaryote (like a bacterium) into a multi-celled, sexual eukaryote would not be a “magical” process carried out by just a few, well-chosen beneficial mutations (as if nature had the power to “choose” anything!). In fact, quite the opposite would be true. Why so? Ernst Mayr, who undeniably ranks as the most eminent evolutionary taxonomist in the world, remarked in his book,

*What Evolution Is*: “Any mutation that induces changes in the phenotype [the outward, physical make-up of an organism—BT/BH] will either be favored or discriminated against by natural selection.... **[T]he occurrence of new beneficial mutations is rather rare**” (2000, p. 98, emp. added). Beneficial mutations (viz., those that provide additional information for, and instructions to, the organism) are indeed “rather rare.” Furthermore, as evolutionists have been known to admit quite candidly, mutations that affect the phenotype almost always are **harmful** (see Crow, 1997; Cartwright, 2000, p. 98). The famous Stanford University geneticist, Luigi Cavalli-Sforza (who is the head of the International Human Genome Project), addressed this fact when he wrote:

Evolution also results from the accumulation of new information. In the case of a biological mutation, new information is provided by an error of genetic transmission (i.e., a change in the DNA during its transmission from parent to child). **Genetic mutations are spontaneous, chance changes, which are rarely beneficial, and more often have no effect, or a deleterious one** (2000, p. 176, emp. added, parenthetical item in orig.).

In addressing the complete ineffectiveness of mutations as an alleged evolutionary mechanism, Dr. Grassé observed:

No matter **how numerous they may be, mutations do not produce any kind of evolution....** The opportune appearance of mutations permitting animals and plants to meet their needs seems hard to believe. Yet the Darwinian theory is even more demanding: a single plant, a single animal would require thousands and thousands of lucky, appropriate events. Thus, miracles would become the rule: events with an infinitesimal probability could not fail to occur.... There is no law against daydreaming, but science must not indulge in it (1977, pp. 88, 103, 107, emp. added).

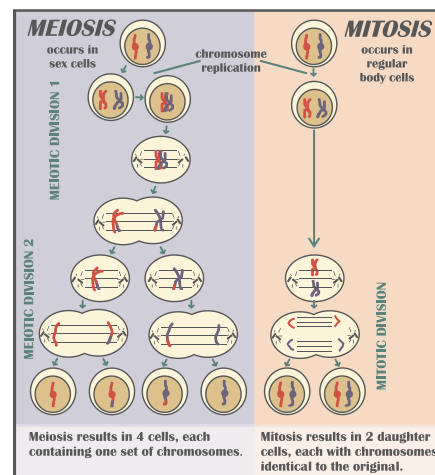
Grassé is not the only prominent evolutionist to take such a view in regard to mutations as an ineffectual driving force for evolution. In a speech presented at Hobart College several years ago, the late Harvard paleontologist Stephen Jay Gould spoke out in a somewhat militant fashion about the subject when he said:

A mutation doesn’t produce major new raw material. You don’t make a new species by mutating the species.... That’s a common idea people have; that evolution is due to random mutations. A mutation is not the cause of evolutionary change (1984).

All of this raises the question: If mutations are **not** the cause of evolutionary change, then what is?

There is more to the problem of the origin of sex, however, than “just” the fact of rare, beneficial mutations and their much more frequent cousins, the harmful, deleterious mutations. There is the added problem related to the two different types of cell division we mentioned earlier—mitosis and meiosis. During mitosis, **all** of the chromosomes are copied and passed on from the parent cell to the daughter cells. Meiosis (from the Greek meaning to split), on the other hand, occurs only in sex cells (i.e., eggs and sperm); during this type of replication, **only half** of the chromosomal material is copied and passed on. [For an excellent, up-to-date description of the complicated, two-part process by which meiosis occurs, see Mayr, p. 103.] Once meiosis has taken place,

[t]he result is the production of completely new combinations of the parental genes, all of them uniquely different genotypes [the genetic identity of an individual that does not show as outward characteristics—BT/BH]. These, in turn, produce unique phenotypes, **providing unlimited new material** for the process of natural selection (Mayr, p. 104, emp. added).



Graphic depiction of meiosis and mitosis

It is those very facts—that meiosis allegedly has “evolved” the ability to halve the chromosome number (but only for gametes), **and** that it actually can provide “unlimited new material”—which make the meiotic process so incredible. And the critical nature of meiosis to life as we know it has been acknowledged (albeit perhaps begrudgingly) even by evolutionists. Margulis and Sagan, for example, wrote:

We think that **meiosis** became tied to two-parent sex and that meiosis as a cell process, rather than two-parent sex, **was a prerequisite for evolution of many aspects of animals.... [M]eiosis seems intimately connected with complex cell and tissue differentiation.** After all, animals and plants return every generation to a single nucleated cell (1997, p. 291, emp. added).

These two evolutionists have admitted that meiosis is critical for sexual reproduction. Yet in their volume, *Slanted Truths*, they stated unequivocally that meiotic sex evolved “520 million years ago” (1997, p. 293). How, pray tell, could the bacteria that are supposed to be responsible for the evolution of sex have “stabilized a billion years ago” (as Grassé observed that they did), and then 500 million years after that stabilization, mutate enough to “evolve” the painstaking process of meiosis? **Is anyone actually listening to what evolutionists are saying?** Read carefully the following scenario, as set forth in Jennifer Ackerman’s 2001 book, *Chance in the House of Fate*, and as you do, concentrate on the items we have placed in bold print that are intended to draw the reader’s attention to the “just-so” nature of the account being proffered.

The first sex cells **may** have been interchangeable and of roughly the same size. **By chance**, some **may have been** slightly bigger than others and stuffed with nutrients, an advantage in getting progeny off to a good start. **Perhaps** some were smaller, faster, good at finding mates. As organisms continued to meld and join their genetic material, the pairs of a larger cell with a smaller one proved an efficient system. **Over time**, the little rift between the sexes widened, as did the strategies of male and female for propagating their own genes (pp. 48-49, emp. added).

The first sex cells **may** have been.... **By chance**, some **may have been**.... **Perhaps** some were.... **Over time**, the.... It is little wonder that, in their more candid moments, evolutionists admit, as Ackerman eventually did, that “when it comes to sex, we inhabit a mystery” (p. 115).

Notice, however, the admission by Margulis and Sagan that “meiosis seems connected with complex cell and tissue differentiation.” Indeed it does—**now!** But how did a process as incredibly complex as meiosis ever get started in the first place? What (or, better yet, **Who**) “intricately connected it with complex cell and tissue differentiation”? With all due respect, there is not an evolutionist on the planet who has been able to come up with an adequate (much less believable) explanation as to how somatic cells reproduce by mitosis (thereby maintaining the species’ standard chromosome number in each cell), while gametes are produced by meiosis—wherein that chromosome number is halved so that, at the union of the male and female gametes during reproduction, the standard number is reinstated.

Lewis Thomas, the highly regarded medical doctor who served for many years as the president and chancellor of the prestigious Sloan-Kettering Cancer Center in Manhat-

tan, was unable to contain either his enthusiasm or his praise for the system we know as “sexual reproduction.” In his book, *The Medusa and the Snail*, he wrote about the “miracle” of how one sperm cell forms with one egg cell to produce the cell we know as a zygote, which, nine months later, will become a newborn human being. He concluded:

The mere existence of that cell should be one of the greatest astonishments of the earth. People ought to be walking around all day, all through their waking hours, calling to each other in endless wonderment, talking of nothing except that cell.... If anyone does succeed in explaining it, within my lifetime, I will charter a skywriting airplane, maybe a whole fleet of them, and send them aloft to write one great exclamation point after another around the whole sky, until all my money runs out (1979, pp. 155-157).

Dr. Thomas’ money is perfectly safe. No one has been able to explain—from an evolutionary viewpoint—the origin of sex, the origin of the incredibly complex meiotic process that makes sex possible, or the intricate development of the embryo (which is itself a marvel of design). At conception, the chromosomes inherited from the sperm are paired with the chromosomes inherited from the egg to give the new organism its full chromosomal complement. Evolutionary theorists ask us to believe that random, chance occurrences brought about this marvelously interdependent process of, first, splitting the genetic information into equal halves, and, second, recombining it through sexual reproduction. Not only is an intricate process required to produce a sperm or egg cell in the first place via meiosis, but another equally intricate mechanism also is required to rejoin the genetic information during fertilization in order to produce the zygote, which will become the embryo, which will become the fetus, which eventually will become the newborn. The idea that all of this “just evolved” is unworthy of consideration or acceptance, especially in light of the evidence now at hand.

[to be continued]

## REFERENCES

- Ackerman, Jennifer (2001), *Chance in the House of Fate* (Boston, MA: Houghton Mifflin).  
 Bell, Graham. (1982), *The Masterpiece of Nature: The Evolution and Genetics of Sexuality* (Berkeley, CA: University of California Press).  
 Bernstein, H., F.A. Hopf, and R.E. Michod (1989), “The Evolution of Sex: DNA Repair Hypothesis,” *The Sociobiology of Sexual and Reproductive Strategies*, ed. C. Rasa and E. Voland (London: Chapman and Hall).  
 Cartwright, John (2000), *Evolution and Human Behavior* (London: Macmillan).

- Cavalli-Sforza, Luigi Luca (2000), *Genes, Peoples, and Languages* (New York: North Point Press).  
 Crow, J.F. (1988), “The Importance of Recombination,” *The Evolution of Sex: An Examination of Current Ideas*, ed. Michod and Levin (Sunderland, MA: Sinauer Associates), pp. 56-73.  
 Crow, J.F. (1997), “The High Spontaneous Mutation Rate: Is it a Health Risk?,” *Proceedings of the National Academy of Sciences, U.S.A.*, 94:8380-8386.  
 Dobzhansky, Theodosius, Francisco J. Ayala, G. Ledyard Stebbins, and James W. Valentine (1977), *Evolution* (San Francisco, CA: W.H. Freeman).  
 Eldredge Niles and Joel Cracraft (1980), *Phylogenetic Patterns and the Evolutionary Process: Method and Theory in Comparative Biology*, (New York: Columbia University Press).  
 Gould, Stephen Jay (1984), “Is a New and General Theory of Evolution Emerging?,” speech presented at Hobart College, February 14, 1980; as quoted in Luther D. Sunderland, *Darwin’s Enigma* (San Diego, CA: Master Books).  
 Grassé, Pierre-Paul (1977), *Evolution of Living Organisms* (New York: Academic Press).  
 Kitcher, Philip (1982), *Abusing Science: The Case Against Creationism* (Cambridge, MA: MIT Press).  
 Koestler, Arthur (1978), *Janus: A Summing Up* (New York: Vintage Books).  
 Maddox, John (1998), *What Remains to be Discovered* (New York: The Free Press).  
 Margulis, Lynn and Dorion Sagan (1997), *Slanted Truths: Essays on Gaia, Symbiosis, and Evolution* (New York: Springer-Verlag).  
 Maynard-Smith, John (1986), *The Problems of Biology* (Oxford, England: Oxford University Press).  
 Mayr, Ernst (2001), *What Evolution Is* (New York: Basic Books).  
 Reichenbach, Bruce and V. Elving Anderson (1995), *On Behalf of God* (Grand Rapids, MI: Eerdmans).  
 Ridley, Mark (2001), *The Cooperative Gene* (New York: The Free Press).  
 Ridley, Matt (1993), *The Red Queen* (London: Viking).  
 Schecter, Julie (1984), “How Did Sex Come About?,” *Bioscience*, 34:680-681, December.  
 Thomas, Lewis (1979), *The Medusa and the Snail* (New York: Viking).  
 Van Valen, Leigh (1973), “A New Evolutionary Law,” *Evolutionary Theory*, 1:1-30.  
 Wakeford, Tom (2001), *Liaisons of Life* (New York: John Wiley & Sons).  
 Ward, Peter (2001), *Future Evolution* (New York: Henry Holt).  
 Williams, George C. (1975), *Sex and Evolution* [in the *Monographs in Population Biology* series] (Princeton, NJ: Princeton University Press).  
 Zimmer, Carl (2000), *Parasite Rex* (New York: The Free Press).  
 Zimmer, Carl (2001), *Evolution: The Triumph of an Idea* (New York: HarperCollins).

ADDRESS SERVICE REQUESTED



## ANNOUNCING: THE NEW “ROCK-SOLID FAITH: HOW TO SUSTAIN IT” VIDEO SERIES

In my April “Note from the Editor,” I announced the availability of volume two in our new *Rock-Solid Faith* trilogy, *Rock-Solid Faith: How to Sustain It*. [The first volume, *Rock-Solid Faith: How to Build It*, was released in April 2000; the third volume, *Rock-Solid Faith: How to Defend It*, is due to be released late in 2003.]

In that April 2002 announcement, I made the following comment: “During the upcoming summer months, I am scheduled to tape a 13-lesson video series to accompany the book chapter by chapter (just as I did with *Rock-Solid Faith: How to Build It*). I will announce the videos in my ‘Note from the Editor’ as soon as they are available.”

I am happy to announce in my “Note from the Editor” this month that the videos to accompany *Rock-Solid Faith: How to Sustain It* are now available. During late May, I flew to Texas to spend a week at the studios of World Video Bible School in order to work on filming the new series. Rudy Cain and his dedicated, hard-working staff did their usual top-notch, quintessentially professional job in regard to the preparations required for the week-long project. They typed hundreds of pages of text into a specialized character-generator computer so they could be viewed on screen. They diligently prepared each set prior to the shooting of the individual lessons. And they did a brilliant job in editing the end product. Plus, Rudy and his sweet wife Sharon housed and fed me the entire time!

The 13-lesson, 5-tape set follows the book chapter by chapter (exactly as the previous videos did with *Rock-Solid Faith: How to Build It*). Each lecture in the series is approximately 38 minutes long, so that the presentations may be used in Bible school classroom settings (which, from reports we have been receiving regarding the *Rock-Solid Faith: How to Build It* video series, is one of the most popular venues for viewing the lectures). Since each video lecture uses almost a complete 45-minute class session, many Bible class teachers choose to show the video lesson to the students one week, and then follow that lesson the next week with a study of the written material from the book (or vice

versa). This works quite well, especially in view of the fact that there simply is no way to cover in the 38-minute videos every single aspect examined in each chapter of the book. The video lectures are in-depth presentations (as opposed to being just a cursory treatment), but, admittedly, the material in the book is much more extensive (and contains additional reference material and documentation that was not conducive to oral presentations).

I think you will be **very** pleased with both the content and the quality of the new video series. While you, as the viewer, will have to judge the content, I certainly can attest to the quality.

Each tape in the series is of the highest quality, due to the fact that the good folks at WVBS not only have the latest in high-tech video equipment (including state-of-the-art character generation computers), but also are consummate professionals as well (with a touch of perfectionism thrown in for good measure).

The five tapes in the set come in sturdy, protective plastic cases with full-color covers. Tapes are sold only in sets, which sell for \$85 (\$5 s/h). Books are \$12 each (\$1.50 s/h for first copy; 50¢ s/h for each additional copy, with a 15% discount offered when you order 10 or more copies). *Rock-Solid Faith: How to Build It* still is available (in book and video format) at the same prices. Shortly, we plan to offer both in a DVD format (watch this space for that announcement). If you would like to order the videos or the book via credit card (or by invoicing a church), call us toll free at 800/234-8558. Your satisfaction—as with

each of our products and services—is completely guaranteed.

**Bert Thompson**

[PS: While I am on the subject, I would like to recommend to you the non-profit work of World Video Bible School. WVBS produces videos on every book of the Bible, and a host of related subjects (church history, counseling, etc.). The instructors are sound, well-qualified Christians. Call WVBS for the latest catalog (512/398-5211), or write them at: 130 Lantana Lane, Maxwell, Texas, 78656.]

