# Extinction of the human male

*David White*

The idea that men are headed for extinction may sound somewhat strange, but it has been a topic of serious scientific debate in recent years. In 2003, Oxford University geneticist Bryan Sykes claimed that the human Y chromosome was "crumbling before our very eyes".[1] He warned that the demise of men was imminent.[2] However, doomsday predictions of Y-chromosome decay may have been a little hasty.

### The story of Y

Humans have 23 pairs of chromosomes in each cell; one of these pairs is classified as sex chromosomes. Females have two X chromosomes and males possess one X and one Y. The Y chromosome is passed from fathers to sons and houses the key genetic instructions for male development. Compared to most chromosomes, Y is rather small. It has about 70 million base pairs and houses about 78 protein-coding genes (of the estimated 25,000 in the human genome). Some of these genes are expressed throughout the body, whereas others are expressed predominantly in male reproductive organs.[3]

### Why is the Y chromosome in such peril?

Since the Y chromosome doesn't have a 'partner', it cannot engage in a process known as genetic recombination. During meiosis, chromosome pairs line up, join and swap genetic material in a process called 'recombination'. This is why two parents can have lots of children that are physically different from each other; the individual sets of chromosomes that each parent passes on are unique, highly-shuffled versions of their own chromosome pairs. This shuffling process enables a mutated chromosome to purge itself from some harmful mutations (see figure 1). But since the Y chromosome does not undergo recombination, mutated portions of it cannot be cut-and-paste over with a 'healthier' version.[4] Thus Y chromosome mutations supposedly keep piling up. This inability of the Y chromosome to engage in recombination is one of the key reasons fuelling belief about its demise.

Moreover, the Y chromosome is supposedly bombarded by more mutations.[5] Men produce sperm throughout their life, whereas women have a set number of egg cells at birth. This means that when men reproduce, their sperm has gone through more rounds of cell divisions, which means there's more opportunity to accumulate mutations. This is even more pronounced in older fathers. Leading evolutionary biologist Steve Jones calls men: "far more potent as a mutagen than the hydrogen bomb".[6] On average, the chromosomes passed down to you have spent half their time in females and half in males.[7] But a male's Y chromosome has only ever been housed in males, so it has never experienced the 'reprieve' a chromosome gets when housed in a female.[8]

Furthermore, evolutionary assumptions have boosted claims about the demise of the Y chromosome. The X and Y chromosomes are believed to have been a standard pair of non-sex chromosomes (autosomes) 300 million years ago. Since this time the X chromosome has supposedly maintained most of its genes, whereas the Y chromosome has decayed and shortened dramatically. That's why this chromosome is often referred to as a 'profoundly degenerate X chromosome'.[9] However, the Y chromosome has its own unique genes that are not on X, so evolutionists have had to speculate how these arose against what they perceive as a strong current of overall decay.

Y-demise proponents have also pointed out that many of the genes it contains have been rendered non-functional by mutations. Bryan Sykes calls it a "graveyard of rotting genes".[10] Considering that mutations are copying mistakes in DNA,

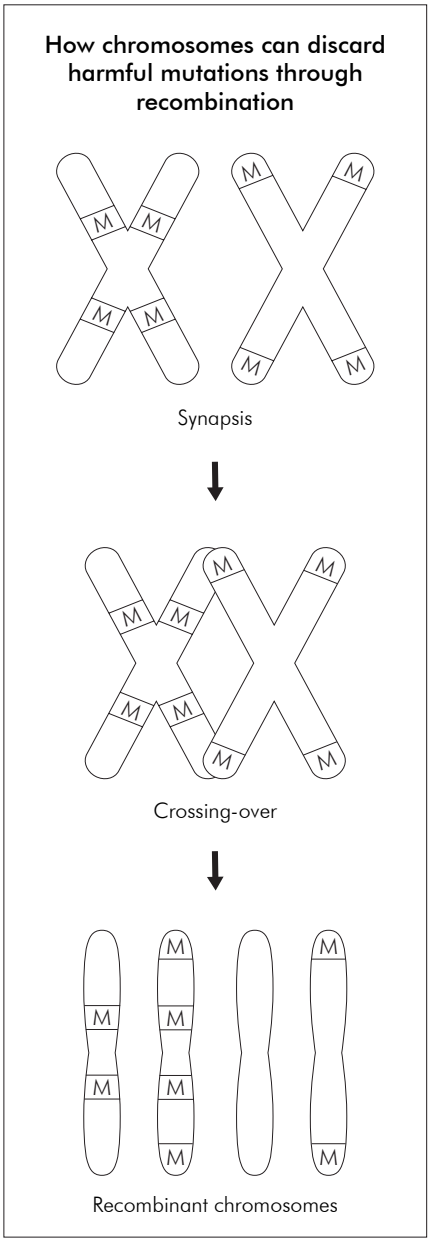


**Figure 1.** Example of recombination during meiosis. Prior to recombination, the starting pair of homologous chromosomes have mutations at different locations (loci). After recombination, however, one of the recombinant chromosomes no longer has the potentially harmful mutations.

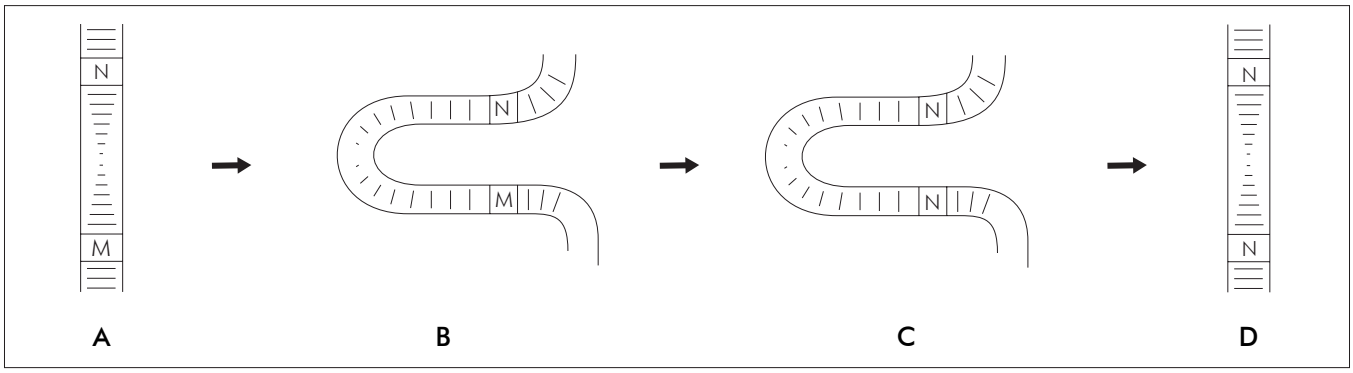


**Figure 2.** How the Y chromosome heals itself. **A** – One of the palindromes has a mutated gene (M) and a normal copy of the gene (N) in opposite 'arms'. **B** – The middle of the palindrome acts like a hinge, bringing the two genes in close contact. Gene conversion restores the mutated gene. **C** – Both arms of the palindrome end up with normal copies of the gene.

it's not surprising that mutations occasionally turn functional genes into non-functional genes (pseudogenes or fossil genes). But we need to be cautious here. Some have been overzealous in labeling as pseudogenes certain DNA sequences which have later been found to serve a function.[11,12]

### Self-healing chromosome

Although there may appear to be little future left for the Y chromosome, further research has revealed previously unsuspected ways of self-repair. The Y chromosome's ability to heal itself is due to its long palindromic sequences (sequences that read the same in either direction). The Y chromosome contains eight large palindromes with genes imbedded in them—the largest is almost 3 million DNA 'letters' from end to end. These have earned the Y chromosome the nickname 'a genetic hall of mirrors'.

So how do these help the chromosome repair itself? If a gene in one arm of a palindrome is corrupted by mutation, the middle of the palindrome can act like a hinge, bringing the two arms together. Then, in a process known as *gene conversion*, the 'healthy' gene in the complementary arm overwrites and restores the sequence in the mutated gene (see figure 2). This process helps explain why intact genes tend to reside in the palindrome arms, whereas the corrupted copies of these genes reside elsewhere.[13]

Not all geneticists are convinced palindromic gene conversion will save the Y chromosome, though. Sykes says,

> "There is no guarantee that the gene conversion will repair a damaged copy. The essential ignorance of DNA makes it equally likely that the good copy will be spoiled instead".[14]

In any case, it appears that palindromic gene conversion is another way that nature is 'wired' to slow the rate of genomic decay.[15] Furthermore, by comparing ape and human Y-chromosomes, some evolutionists have argued that human Y chromosomes haven't decayed much in the recent past, after all.[16] Geneticist Jennifer Hughes tells us:

> "… even though the Y has lost many genes since its origin about 300 million years ago, it's been holding steady in humans for the last 6 million years."[17]

So there now appears to be a change in attitude about the *rate* of Y-chromosome decay. Leading Y chromosome researcher David Page reassures us:

> "… contrary to the dire predictions that have become popular over the last decade, the sky is *not* falling on the Y [chromosome]."[17]

### Conclusion

What the Y chromosome is telling us is that the neo-Darwinian mechanism of mutation and selection consistently degrades genetic software, as opposed to upgrading it. Though males are not doomed in the way Sykes claims, overall genome decay is a real phenomenon, and the more we appreciate the extent of the problem, the more it undermines the validity of the big picture of evolution.

### References

1. Sykes, B., *Adam's Curse: The Science That Reveals Our Genetic Destiny*, W.W. Norton and Company, New York, p. 290, 2003.
2. Ref. 1, p. 294. Sykes estimates that within 5,000 generations (approximately 125,000 years) fertility will be 1% of what it is today.
3. Skaletsky, H. *et al.*, The male-specific region of the human Y chromosome is a mosaic of discrete sequence classes, *Nature* **423**:825–837, 2003.
4. However, The X and Y chromosomes do undergo a little recombination at their tips, in the pseudoautosomal region.
5. This is debatable as the *low level* of variation in the Y chromosome has surprised many—you wouldn't expect this if bombarded by so many mutations. Sykes acknowledges this minimal variation (ref. 1, p. 135) but still espouses the 'hit by more mutations' argument in his book. See also creation.com/y-chromosome-adam.
6. Jones, S., Is Human Evolution Over? Darwin College Lecture Series, Cambridge University 2009, accessed via iTunes.
7. Except the X chromosome, which spends approximately 2/3 of its time in females.

8. A lady pregnant with a baby boy is not relevant to the discussion here
9. Ref. 3, p. 825.
10. Ref. 1, p. 284.
11. Woodmorappe, J., Pseudogene function: more evidence, *J. Creation* **17**(2):15–18, 2003.
12. Lai, P. *et al.*, An olfactory receptor pseudogene whose function emerged in humans: a case study in the evolution of structure-function in GPCRs, *J. Structural and Functional Genomics* **9**:29–40, 2008.
13 Rozen, S., Abundant gene conversion between arms of palindromes in human and ape Y chromosomes, *Nature* **423**(6942):873–876, 2003.
14. Ref. 1, p. 285.
15. Another example is the chief enzyme involved in copying DNA (DNA polymerase). This remarkable enzyme not only copies DNA, but performs its own 'proof reading'. Then, other enzymes come in and perform further work identifying and repairing copying mistakes. This process helps minimize the number of mutations.
16. Hughes, J. *et al.*, Conservation of Y-linked genes during human evolution revealed by comparative sequencing in chimpanzee, *Nature* **437**(7055):101–104, 2005.
17. Cameron, D., Human Y chromosome stays intact while chimp Y loses genes, Whitehead Institute for Biomedical Research, www.wi.mit.edu/news/archives/2005/dp_0831.html, 31 August 2005.

# The K/T impact hypothesis and secular neocatastrophism—why is this important to Flood geology?

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Historians of the secular geological sciences have documented the 19th-century victory of Lyellian gradualism over biblical and secular catastrophism. However, gradualism's rigid approach stifled creative thought and forced many secular geologists to accept counterintuitive interpretations of geological phenomena. Any appeal to catastrophic processes was generally deemed unacceptable. As a science, geology then languished under the burden of gradualism.

This stranglehold was challenged in the early 1920s by Bretz's work on the Channeled Scablands[1] of Washington State. The refusal of mainstream geologists to admit the obvious was a reflection of the depth of the philosophical commitment to Lyell. Lest anyone should doubt the seriousness of ending one's professional career by defending some aspect of catastrophism, one needs to look no further than the extensive disclaimer in Derek Ager's classic book, *The New Catastrophism*.[2] Thanks to Lyell's efforts to smear Cuvier with the brush of 'Scriptural Geology', geologists long equated any form of catastrophism with the Genesis Flood.

## What changed?

Though many credit Bretz with breaking the stranglehold of gradualism, the modern rebirth of secular catastrophism (i.e. neocatastrophism) actually was forced on the gradualists with the unique proposal for the extinction of the dinosaurs at the end of the Cretaceous by the impact of an asteroid.[3] This simple proposal initiated a debate between those who defended an Earth-based cause for the extinction and those who invoked an extraterrestrial (and catastrophic) cause.

At the time of the Alvarez *et al.* proposal, a major shortcoming of the extraterrestrial hypothesis was the lack of any supporting impact crater dated to the Cretaceous-Tertiary (K/T) extinction event. Many who rejected the asteroid impact hypothesis pointed to large-scale volcanism. In 1991, the Chicxulub impact crater was identified in the southern Gulf of Mexico and dated to the K/T boundary.[4] But even then, many rejected it as the cause of the extinction event and continued to believe that a better cause was to be found in massive flood basalts. However, supporting evidence of an extraterrestrial cause—impact glass spherules and tsunami deposits—were identified at several locations around the Gulf of Mexico. Also, radiometric dating of flood basalt candidates returned dates that fell outside an acceptable range. Those who continued to advocate a terrestrial cause for the K/T extinction event were effectively running out of ammunition.

## Solidification of the extraterrestrial cause

Mounting evidence in support of an extraterrestrial cause for the extinction at the K/T boundary has slowly overwhelmed its opposition such that there is now little debate among secular geoscientists over the extraterrestrial cause for the global extinction that they allege occurred at the K/T boundary. Most of the work being conducted today regarding this theory revolves around better defining the formation, morphology, and scale of the Chicxulub Crater.[5,6]

## Why does this matter?

Few outside of the geological sciences fully appreciate or understand the paradigm shift that was cemented by the acceptance of the extraterrestrial 'dinosaur killer'. Lyellian gradualism suffered a fatal blow. Neocatastrophism, if only relegated to discrete periods of deep geological time, was