Week 3: Part 1

**Does the Gospel Depend on a Young Earth?**

**by Ken Ham**

December 8, 2010

[**Layman**](http://www.answersingenesis.org/get-answers/v/recent/t/lay)

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Does it really matter how old the earth is, especially in light of the church’s need to share the gospel? These two topics are more closely related than most Christians realize.

Can a person believe in an old earth and an old universe (millions or billions of years in age) and be a Christian?

First of all, let’s consider three verses that sum up the gospel and salvation. [1 Corinthians 15:17](http://biblia.com/bible/nkjv/1%20Corinthians%2015.17) says, “If Christ is not risen, your faith is futile; you are still in your sins!” Jesus said in [John 3:3](http://biblia.com/bible/nkjv/John%203.3), “Most assuredly, I say to you, unless one is born again, he cannot see the kingdom of God.” [Romans 10:9](http://biblia.com/bible/nkjv/Romans%2010.9) clearly explains, “If you confess with your mouth the Lord Jesus and believe in your heart that God has raised Him from the dead, you will be saved.”

Numerous other passages could be cited but not one of them states in any way that a person has to believe in a young earth or universe to be saved.

And the list of those who cannot enter God’s kingdom, as recorded in passages like [Revelation 21:8](http://biblia.com/bible/nkjv/Revelation%2021.8), certainly does not include “old earthers.”

Many great men of God who are now with the Lord have believed in an old earth. Some of these explained away the Bible’s clear teaching about a young earth by adopting the classic gap theory. Others accepted a day-age theory or positions such as theistic evolution, the framework hypothesis, and progressive creation.

Scripture plainly teaches that salvation is conditioned upon faith in Christ, with no requirement for what one believes about the age of the earth or universe.

Now when I say this, people sometimes assume then that it does not matter what a Christian believes concerning the supposed millions of years age for the earth and universe.

Even though it is not a salvation issue, the belief that earth history spans millions of years has very severe consequences. Let me summarize some of these.

**Authority Issue**

The belief in millions of years does not come from Scripture, but from the fallible methods that secularists use to date the universe.

To attempt to “fit” millions of years into the Bible, you have to invent a gap of time that almost all Bible scholars agree the text does not allow—at least from a hermeneutical perspective. Or you have to reinterpret the “days” of creation as long periods of time (even though they are obviously ordinary days in the context of Genesis 1). In other words, you have to add a concept (millions of years) from outside Scripture, into God’s Word. This approach puts man’s fallible ideas in authority over God’s Word.

As soon as you surrender the Bible’s authority in one area, you “unlock a door” to do the same thing in other areas. Once the door of compromise is open, even if ajar just a little, subsequent generations push the door open wider. Ultimately, this compromise has been a major contributing factor in the loss of biblical authority in our Western world.

The church should heed the warning of [Proverbs 30:6](http://biblia.com/bible/nkjv/Proverbs%2030.6), “Do not add to His words, lest He rebuke you, and you be found a liar.”

**Contradiction Issue**

A Christian’s belief in millions of years totally contradicts the clear teaching of Scripture. Here are just three examples:

*Thorns.* Fossil thorns are found in rock layers that secularists believe to be hundreds of millions of years old, so supposedly they existed millions of years before man. However, the Bible makes it clear that thorns came into existence after the curse: “Then to Adam He said, ‘Because . . . you have eaten from the tree of which I commanded you, saying, “You shall not eat of it”: Cursed is the ground for your sake. . . . Both thorns and thistles it shall bring forth for you’” ([Genesis 3:17–18](http://biblia.com/bible/nkjv/Genesis%203.17%E2%80%9318)).

*Disease.* The fossil remains of animals, said by evolutionists to be millions of years old, show evidence of diseases (like cancer, brain tumors, and arthritis). Thus such diseases supposedly existed millions of years before sin. Yet Scripture teaches that after God finished creating everything and placed man at the pinnacle of creation, He described the creation as “very good” ([Genesis 1:31](http://biblia.com/bible/nkjv/Genesis%201.31)). Certainly calling cancer and brain tumors “very good” does not fit with Scripture and the character of God.

*Diet.* The Bible clearly teaches in [Genesis 1:29–30](http://biblia.com/bible/nkjv/Genesis%201.29%E2%80%9330) that Adam and Eve and the animals were all vegetarian before sin entered the world. However, we find fossils with lots of evidence showing that animals were eating each other—supposedly millions of years before man and thus before sin.

**Death Issue**

[Romans 8:22](http://biblia.com/bible/nkjv/Romans%208.22) makes it clear that the whole creation is groaning as a result of the Fall—the entrance of sin. One reason for this groaning is death—the death of living creatures, both animals and man. Death is described as an “enemy” ([1 Corinthians 15:26](http://biblia.com/bible/nkjv/1%20Corinthians%2015.26)), which will trouble creation until one day it is thrown into the lake of fire.

[Romans 5:12](http://biblia.com/bible/nkjv/Romans%205.12) and other passages make it obvious that physical death of man (and really, death in general) entered the once-perfect creation because of man’s sin. However, if a person believes that the fossil record arose over millions of years, then death, disease, suffering, carnivorous activity, and thorns existed millions of years before sin.

The first death was in the Garden of Eden when God killed an animal as the first blood sacrifice ([Genesis 3:21](http://biblia.com/bible/nkjv/Genesis%203.21))—a picture of what was to come in Jesus Christ, the Lamb of God, who would take away the sin of the world. Jesus Christ stepped into history to pay the penalty of sin—to conquer our enemy, death.

By dying on a cross and being raised from the dead, Jesus conquered death and paid the penalty for sin. Although millions of years of death before sin is not a salvation issue per se, I personally believe that it is really an attack on Jesus’ work on the cross.

Recognizing that Christ’s work on the cross defeated our enemy, death, is crucial to understanding the “good news” of the gospel: “And God will wipe away every tear from their eyes; there shall be no more death, nor sorrow, nor crying. There shall be no more pain, for the former things have passed away” ([Revelation 21:4](http://biblia.com/bible/nkjv/Revelation%2021.4)).

**Rooted in Genesis**

All biblical doctrines, including the gospel itself, are ultimately rooted in the first book of the Bible.

* God specially created everything in heaven and earth ([Genesis 1:1](http://biblia.com/bible/nkjv/Genesis%201.1)).
* God uniquely created man and woman in His image ([Genesis 1:26–27](http://biblia.com/bible/nkjv/Genesis%201.26%E2%80%9327)).
* Marriage consists of one man and one woman for life ([Genesis 2:24](http://biblia.com/bible/nkjv/Genesis%202.24)).
* The first man and woman brought sin into the world ([Genesis 3:1–24](http://biblia.com/bible/nkjv/Genesis%203.1%E2%80%9324)).
* From the beginning God promised a Messiah to save us ([Genesis 3:15](http://biblia.com/bible/nkjv/Genesis%203.15)).
* Death and suffering arose because of original sin ([Genesis 3:16–19](http://biblia.com/bible/nkjv/Genesis%203.16%E2%80%9319)).
* God sets society’s standards of right and wrong ([Genesis 6:5–6](http://biblia.com/bible/nkjv/Genesis%206.5%E2%80%936)).
* The ultimate purpose of life is to walk with God ([Genesis 6:9–10](http://biblia.com/bible/nkjv/Genesis%206.9%E2%80%9310)).
* All people belong to one race—the human race ([Genesis 11:1–9](http://biblia.com/bible/nkjv/Genesis%2011.1%E2%80%939)).

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**(下面中文使用谷歌翻译。需要修正和编辑。)**

第3周：第1部分

难道福音依靠一个年轻的地球？

由肯火腿

2010年12月8日

外行

关键词

•年龄 - 地球

•作者县 - 火腿

•地球

•福音

在精选

•浏览这个问题

•购买本期

•今天订阅

它是否真的重要地球有多老，尤其是在光的教会的需要，以分享福音？这两个主题更密切的关系比大多数的基督徒认识。

一个人可以相信，在一个古老的地球和一个老的宇宙（百万或几十亿年的年龄），并成为基督徒？

首先，让我们考虑三个经文总结了福音和救恩。哥林多前书15:17说：“如果基督没有复活，你们的信便是徒然！你仍然在你的罪”耶稣在约翰福音3:3说， “最稳妥，我告诉你，人若不重生，他不能看见神的国。 “罗马书10:9清楚地解释， ”如果你承认你的嘴主耶稣，并相信在你的心脏，神已经从死里复活，就必得救。 “

许多其他的段落可以被引用，但他们没有一个人指出在一个人相信地球年轻或宇宙要保存的任何方式。

和那些谁不能进神的国的名单，记录在像启示录21:8经文，当然不包括“老earthers 。 ”

神的许多伟人谁是现在与主都认为在一个古老的大地。有些解释了圣经的关于一个年轻的地球明确的教学采用经典的缺口理论。其他接受了日龄理论或如有神进化论，框架假设，渐进创造职位。

圣经清楚地教导我们救恩的条件是在信仰基督，与什么人相信关于地球或宇宙的年龄没有要求。

现在，当我这样说，人们有时会认为那么这也无所谓什么基督徒相信有关该咋办百万岁，为地球和宇宙。

尽管它不是一个救赎的问题，相信地球历史跨越数百万年造成十分严重的后果。让我总结其中的一些。

权威发行

在数百万年的信仰并非来自圣经，而是来自世俗主义者使用迄今为止宇宙中容易犯错的方法。

若要尝试“适合”百万年到圣经，你必须创造一个时间间隙，几乎所有的圣经学者认为文本不允许，至少从诠释学的角度。或者你有重新诠释创作的“天”为时间（即使他们显然平凡的日子在创世记1章的上下文中）很长时间。换句话说，你必须从圣经之外添加一个概念（百万年） ，成神的话语。这种方法将人的犯错误的思想当局在神的话语。

只要你投降在一个区域圣经的权威，你“将门解锁， ”做同样的事情在其他领域。一旦妥协的大门是敞开的，即使虚掩着只是一点点，后代推门扩大开放。最终，这种妥协已经在我们西方世界圣经的权威丧失的主要因素。

教会应该听从箴言30:6的警告， “不要增加他的话，恐怕他责备你，你可以找到一个骗子。 ”

矛盾问题

基督徒的信仰在千百万年完全违背圣经清楚的教导。下面就介绍三个例子：

荆棘。刺化石被发现在岩石层的世俗主义者认为是数亿岁，因此推测它们存在数百万年以前的男人。然而，圣经清楚地表明，刺应运而生了诅咒之后： “那又对亚当说， ”因为。 。 。诅咒是地面为您着想：你从了我吩咐你说： “你不可吃的那”树吃掉。 。 。 。双方荆棘和蒺藜来必给你' “（创世记3:17-18 ） 。

疾病。化石仍然是动物，进化论者说是几百万年的历史，表明疾病（如癌症，脑肿瘤和关节炎）的证据。因此，这种疾病存在所谓数百万年之前的罪。然而，圣经教导我们，神后完成建立的一切，放在男子在创作的巅峰之作，他描述了创建为“非常好”（创世记1:31 ） 。当然，调用癌和脑瘤“非常好”并不与圣经和上帝的性格适合。

饮食。圣经清楚地教导创世记1:29-30 ，亚当和夏娃，动物们都吃素前罪进入了世界。但是，我们发现的化石有很多证据显示，动物罪之前数百万年吃对方，据说那人面前，因此。

死亡问题

罗马书8:22清楚地表明，整个创作的呻吟作为罪的秋天，门口的结果。其中一个原因是连天活物，动物和人的死亡，死亡。死亡被描述为“敌人” （哥林多前书15:26） ，这将创造麻烦，直到有一天它被扔在火湖里。

罗马书5:12和其他段落使它明显，人的肉体的死亡（真的，死亡一般）进入，因为人的罪了一次完美的创造。但是，如果一个人认为，化石记录出现了数百万年，那么死亡，疾病，痛苦，肉食性活动，和荆棘存在数百万年之前的罪。

第一次死亡是在伊甸园中，上帝杀了一个动物作为第一个血祭（创世记3:21 ） - A的是什么来的耶稣基督，上帝的羔羊，谁还会带走的罪孽图片世界。耶稣基督步入历史付出的刑罚罪征服我们的敌人，死亡。

通过死在十字架上，并从死里复活，耶稣战胜了死亡和支付的罪债。虽然数百万年之前的罪死的不是得救的问题本身，我个人认为，这是真正的耶稣在十字架上的工作进行攻击。

认识到基督在十字架上的工作打败我们的敌人，死，关键是要了解福音的“好消息” ： “神也必擦去他们眼中，不得有更多的死亡，也没有悲哀，哭号。不得有更多的痛苦，因为以前的事都过去了“ （启21:4 ） 。

根植于创

所有圣经的教义，包括福音本身，最终扎根于圣经的第一本书。

上帝专门创造万物在天地（创1:1） 。

唯一的上帝创造了男人和女人在他的形象（创1:26-27 ） 。

婚姻是由一个男人和一个女人的一生（创世记2:24 ） 。

第一个男人和女人把罪恶带到了世界（创3:1-24 ） 。

从一开始，神应许弥赛亚来拯救我们（创世记3:15 ） 。

死亡和痛苦的产生是因为原罪（创3:16-19 ）的。

神设置正确与错误（创6:5-6 ）社会的标准。

生活的最终目的是要与神同行（创6:9-10 ） 。

所有的人都属于一个种族 - 人类（创11:1-9 ） 。

肯火腿，前公立学校的科学老师，答案是在创世纪，美国的创始人和总裁。他主编并撰写有关神的话语的权威和进化思想对我们的文化的影响，包括最近的畅销书，已经过去了很多书。

Week 3: Part 2

**Baby *Parasaurolophus* Crest Joined the Chorus Early**

***News to Know***

by Dr. Elizabeth Mitchell

November 11, 2013

[**Layman**](http://www.answersingenesis.org/get-answers/v/recent/t/lay)

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***International Business Times*:**[**“Dinosaur Joe” Might Be Most Complete Parasaurolophus Ever Discovered—And He Was Found By A Teenager**](http://www.ibtimes.com/dinosaur-joe-might-be-most-complete-parasaurolophus-ever-discovered-he-was-found-teenager-1434892)

**If a Parasaurolophus daddy sang bass, little brother was able to join right in there.**

“Dinosaur Joe,” the most complete *Parasaurolophus* specimen yet discovered, has revealed that this dinosaur’s head crest began forming early in life. The intimate association of the bizarre head crests in hadrosaurid dinosaurs with the upper respiratory system is confirmed in this comparatively diminutive juvenile. Analysis of the acoustical possibilities, when “heard” alongside the sound that an adult could have produced, suggests that the *Parasaurolophus*baby may have added a high-pitched voice to the land before the time of dinosaur extinction.

“Little” Joe, a juvenile *Parasaurolophus* found in Utah’s back country by a high school student during a summer enrichment program, was about six feet long when it was buried in Cretaceous sediment. Adult *Parasaurolophus*were about thirty feet long. This well-preserved specimen had reached about a fifth of his (or her?—can’t be sure!) expected adult growth within, paleontologists suspect, the first year of life. Dinosaurs, amphibians, reptiles, and even mammals[1](http://www.answersingenesis.org/articles/2013/11/11/baby-parasaurolophus-crest" \l "fnList_1_1)have a seasonal pattern of variation in bone density called lines of arrested growth. Dinosaur Joe’s tibia (aka his shinbone—the bone thought to most accurately represent maturation in dinosaurs) had no such lines, suggesting he was under a year old.

**Precocious *Parasaurolophus***

“Our baby *Parasaurolophus* is barely one-quarter of adult size, but it had already started growing its crest,” said Dr. Andrew Farke, lead author of the report published in *Peer J*. “This is surprising, because related dinosaurs didn’t sprout their ornamentation until they were at least half-grown. *Parasaurolophus* had to get an early start in order to form its unique headgear,” he added. “Dinosaurs have yearly growth rings in their bone tissue, like trees. But we didn’t see even one ring,” explained co-author Dr. Sarah Werning. “That means it grew to a quarter of adult size in less than a year.”[2](http://www.answersingenesis.org/articles/2013/11/11/baby-parasaurolophus-crest" \l "fnList_1_2)

These are scale drawings comparing the size and shape of the crest on the adult and juvenile *Parasaurolophus.* Inside, the baby’s crest is completely filled with tubular passages connected to its airways. Image: Lukas Panzarin through [Sci-News.com](http://www.sci-news.com/paleontology/science-fossil-dinosaur-parasaurolophus-01483.html)

The familiar long tubular crest atop the head of adult *Parasaurolophus* specimens has long been familiar to paleontologists and dinosaur-loving children, but its purpose has been a matter of speculation. From an evolutionary point of view, there is also the question of what survival advantage would have accrued from possessing this elaborate head décor. Other crested dinosaurs for which juvenile specimens are known seem to have begun growing crests when they were about half their adult size. Joe, at a much smaller fraction of his adult size, already had a bump containing extensive air passages on his head.

**Dino Joe Won’t You Blow Your Horn?**

Joe’s juvenile crest differs not only from the crest anatomy of adults but also from crested juveniles of other types of dinosaurs. Adult crests do have a connection to the nasal passages, but the connection is much wider in Joe. The bones in the region appeared incompletely ossified, an additional factor attesting to Joe’s youth. In fact, unlike even the juveniles of other crested varieties of lambeosaurins, Joe’s nasal passages occupy almost the entire crest.

In pondering the evolutionary survival advantage of this crest to young Joe and its implications for all his hadrosaurid relatives, Farke and colleagues write, “The crests of hadrosaurids are intimately integrated with the respiratory system, by virtue of the airway passing through the crest. Thus, the crest *had*to form early in development, simply so that the animals could continue to breathe.”[3](http://www.answersingenesis.org/articles/2013/11/11/baby-parasaurolophus-crest" \l "fnList_1_3)

This fossil of a baby *Parasarolophus*is remarkably complete, missing only the forelimbs, the end of the tail, and assorted small bones and parts of some bones. Image: Raymond M. Alf Museum of Paleontology, [*International Business Times*](http://www.ibtimes.com/dinosaur-joe-might-be-most-complete-parasaurolophus-ever-discovered-he-was-found-teenager-1434892)

When William Parks named the *Parasaurolophus*genus in 1922, he thought that the crest might have been tethered to the spine to support the head. Others have suggested the crests served an ornamental purpose related to displays of dominance, aggression, or mating rituals. Some illustrations therefore depict these animals sparring with their crests. Inside the long crest tubes lead in and out of the nasal airways. Therefore the possibility that air moving through the crest helped with thermoregulation, air storage for underwater feeding, or provided a place for a salt gland have been suggested. The crests do not have any apparent openings to the outside, so they were not some sort of auxiliary nostril.

The most obvious use of these supra-nasal pipes, when we think about modern animals, would be to produce or amplify a sound. A sound produced in the throat would likely have resonated through the tubular passages. This is reminiscent of the way even our own singing voices resonate through our far less extensive sinuses to give—at least from some people—a rich full sound. Of course the purpose of such a resonant sound becomes the subject of speculation but again can be considered in light of modern animals and the many reasons they use various calls. Could it be some form of communication, a method of species recognition, or a display to declare dominance? Maybe. Did Joe use his developing trumpet to call to his mother? We cannot know, of course, but he probably could have.

**Woofers and Tweeters**

Farke thinks the deeper “voice” produced by the adult resonating through its more extensive pipes might be a way of getting the dominant message across to fellow dinosaurs. He says, “If adult *Parasaurolophus* had ‘woofers,’ the babies had ‘tweeters.’ The short and small crest of baby Joe shows that it may have had a much higher pitch to its call than did adults. Along with the visual differences, this might have helped animals living in the same area to figure out who was the big boss.”[2](http://www.answersingenesis.org/articles/2013/11/11/baby-parasaurolophus-crest" \l "fnList_1_2)

Though fossils can’t call to one another any more than they can joust, acoustics experts have speculated, on the basis of the tube anatomy in a fossilized *Parasaurolophus* crest, what an adult would probably sound like. Check it out at “[The sound of Parasaurolophus](http://www.youtube.com/watch?v=kJ3Ra-WdZrs).” One listener captured the sound in simile, commenting the adult *Parasaurolophus* sounded like a chair “scootching across the floor.” Perhaps soon someone analyzing Joe’s anatomy—which is freely available online—will come up with a simulation of his higher pitched call and produce an animated *Parasaurolophus* family harmonizing in two parts.

**What Can These Bones Tell Us?**

Evolutionary paleontologists are excited about Joe, not only for the insight gained into the structure and function of the crest, but also for the opportunity he provides to study how evolution presumably relied on a change in the timing of embryologic and adult development. This is called *heterochrony.*Biologists in the field of comparative anatomy compare the way embryos, maturing juveniles, and adults of various species grow and develop. Variation of the timing and rate at which intricate anatomical structures form produces remarkable biodiversity. Evolutionists often use [embryonic development](http://www.answersingenesis.org/articles/aid/v8/n1/recapitulation-repackaged) and juvenile maturation to try to figure out how evolution happened. They need to explain how and why this intricate orchestration for an ancestral animal changed to evolve different kinds of animals—such as dinosaurs with head gear varying from tubular crests to spikes, knobs, frills, large domes, and a variety of modified horns.

We instead see God’s hand as the common Designer orchestrating the formation of common designs in different ways. God created all kinds of animals, including all the original [kinds of dinosaurs](http://www.answersingenesis.org/articles/nab3/what-are-kinds-in-genesis) about 6,000 years ago and designed them to reproduce and vary within their created kinds. While we don’t know what those original kinds looks like, we can see from the fossil record even of *Parasaurolophus*that different species varied somewhat in the internal anatomy of their crests, exactly as we would suspect from the [process of speciation](http://www.answersingenesis.org/articles/am/v4/n1/species-change). Thus it comes as no shock from a biblical perspective that the young of some species likely began forming their head crests on a different timetable than others.

What killed Joe the baby *Parasaurolophus*? It wasn’t likely a predator. “There’s no evidence of disease on the bones, and no obvious evidence of a predator attack,” Farke says. “The bones are well put-together. They’ll really get torn apart if some predator attacked them.” Joe’s entombed posture is pretty typical among fossils: his neck is arched, his limbs curled, and his tail straight. His exquisitely preserved anatomy is most consistent with a rapid catastrophic burial. When the global Flood struck the earth a little less that 4,500 years ago, billions of animals were catastrophically buried by violent surges of rising water and sediment that overcame their environments, producing many of the layers we see in the [fossil record](http://www.answersingenesis.org/articles/nab2/do-rock-record-fossils-favor-long-ages).

Thus we see that “Joe,” like billions of other animals, met his sudden end as a result of God’s judgment on man’s wickedness ([Genesis 6:5](http://biblia.com/bible/nkjv/Genesis%206.5)), as described in Genesis chapter 6 through 9. We know from the Bible that the animals ([Genesis 6:17–7:5](http://biblia.com/bible/nkjv/Genesis%206.17%E2%80%937.5)) on Noah’s Ark would have included two dinosaurs of the same kind as Joe to repopulate after the Flood, though extinction eventually overcame them and [many other animals](http://www.answersingenesis.org/articles/am/v5/n2/dinosaurs-ark). Learning more about these amazing animals that God designed gives us a glimpse of our Creator’s creativity as manifested in the variation available in the [genetic information](http://www.answersingenesis.org/articles/nab3/what-are-kinds-in-genesis) He created 6,000 years ago. The exquisite preservation calls to mind not only the Flood of judgment on man’s sin but also Noah’s Ark as a reminder of the safety and [salvation available](http://www.answersingenesis.org/articles/nab/spread-gospel-with-dinosaurs) in Christ. And not without curiosity about the world that then was, we can now—thanks to this new knowledge of Joe’s juvenile *Parasaurolophus* anatomy—mentally visit the pre-Flood world and even imagine the sounds a visitor might have heard in the habitats where dinosaurs roamed.

**For more information:**

* [What Really Happened to the Dinosaurs?](http://www.answersingenesis.org/articles/nab/what-happened-to-the-dinosaurs)
* [Dinosaur Nursery](http://www.answersingenesis.org/articles/2011/11/26/news-to-note-11262011#two)
* [Dinosaur Freeway](http://www.answersingenesis.org/articles/2012/02/04/news-to-note-02042012#three)
* [Paleo-sorting Morphs Three Dinosaurs into One](http://www.answersingenesis.org/articles/2013/08/29/paleo-sorting)
* [Birdsong and Bird Brains](http://www.answersingenesis.org/articles/2013/03/09/news-to-note-03092013#two)
* [“Talk is cheep!”](http://www.answersingenesis.org/articles/2013/03/16/news-to-note-03162013#four)
* [Call of the Wild: Lucy’s Voice](http://www.answersingenesis.org/articles/2012/08/18/news-to-note-08182012)
* [Do Chimp Alarm Calls Reveal How Human Language Evolved?](http://www.answersingenesis.org/articles/2013/11/07/chimp-language)

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**Footnotes**

1. Lines of arrested growth (LAGs) used to be considered strong evidence that dinosaurs were cold-blooded, but recent research (M. Köhler et al., “Seasonal bone growth and physiology in endotherms shed light on dinosaur physiology,” *Nature*(27 June 2012), doi:10.1038/nature11264.) has shown the presence of these lines in extant mammals too. (That does not mean that dinosaurs were not cold-blooded, of course, only that LAGs do not necessarily support that possibility.) [Back](http://www.answersingenesis.org/articles/2013/11/11/baby-parasaurolophus-crest#fnMark_1_1_1)

1. [www.sci-news.com/paleontology/science-fossil-dinosaur-parasaurolophus-01483.html](http://www.sci-news.com/paleontology/science-fossil-dinosaur-parasaurolophus-01483.html" \t "_blank)[Back (1)](http://www.answersingenesis.org/articles/2013/11/11/baby-parasaurolophus-crest#fnMark_1_2_1) [Back (2)](http://www.answersingenesis.org/articles/2013/11/11/baby-parasaurolophus-crest#fnMark_1_2_2)

1. [peerj.com/articles/182](http://peerj.com/articles/182/" \t "_blank) [Back](http://www.answersingenesis.org/articles/2013/11/11/baby-parasaurolophus-crest#fnMark_1_3_1)

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第3周：第2部分

婴儿Parasaurolophus佳洁士早期加入合唱团

新闻知道

由伊丽莎白·米切尔博士

2013年11月11日

外行

•作家伊丽莎白 - 米切尔

•恐龙

•化石

•新闻方知

国际商业时报： “恐龙乔”可能是最完整的Parasaurolophus迄今发现 - 他被发现的十几岁

如果Parasaurolophus爸爸唱低音，小弟才得以参加的权利在那里。

“恐龙乔， ”最完整的Parasaurolophus标本还发现，已经表明，这种恐龙的头冠开始在生命的早期形成。离奇头波峰在鸭嘴龙科恐龙与上呼吸道系统的紧密结合被确认在这个相对身材矮小的少年。的声学可能性的分析，当“听”旁边，一个成年人可能产生的声音，表明Parasaurolophus宝宝可能已经添加了一个高亢的声音在土地恐龙灭绝的时间之前。

“小”乔，在一个夏天的铀浓缩计划在犹他背上的国家发现了一名高中生少年Parasaurolophus ，是大约六英尺长，当它被埋葬在白垩纪沉积物。成人Parasaurolophus大约三十英尺长。这个保存完好的标本已经达到了他的第五个（或她？ - 不能肯定！ ）预期增长成年内，古生物学家怀疑，生命的第一年。恐龙，两栖动物，爬行动物，甚至mammals1have变异的骨质密度的季节性模式称为被捕的增长线。恐龙乔的胫骨（又名他的胫骨，骨头被认为最准确地代表了恐龙成熟）却没有这样的线，暗示他是一岁以下。

早熟Parasaurolophus

“我们的宝宝Parasaurolophus勉强四分之一成人的大小，但它已经开始发展其波峰， ”安德鲁博士Farke ，发表在同行J.该报告的主要作者说：“这是令人惊讶的，因为相关的恐龙都没有发芽的纹饰，直到他们至少有一半生长。 Parasaurolophus必须得到起步较早，以形成其独特的头饰， “他补充说。 “恐龙有逐年年轮骨组织中，如树。但我们没有看到甚至一环，解释说：“合著者廖秀冬博士Werning 。 “这意味着它成长为四分之一成人的大小，在不到一年的时间。 ” 2

 这些都是比较所述波峰的成人和少年Parasaurolophus上的大小和形状比例绘图。内，宝宝的波峰完全充满连接到其呼吸道管状通道。图片：卢卡斯Panzarin通过科幻News.com

熟悉的长管状嵴顶上的成人Parasaurolophus标本的头部早已熟悉的古生物学家和恐龙爱孩子，但它的目的一直猜测的问题。从进化的角度看，还有什么生存优势会从拥有这个精心制作的头部装饰，累积的问题。其他凤头恐龙为这少年的标本是已知似乎已经开始越来越多波峰时，他们大约一半的成人的大小。乔，在他的成人的大小更小的部分，已经有包含在他的头上广泛的空气通道的凸点。

迪诺乔不会你吹你的喇叭？

乔的少年波峰不同，不仅从成人的冠解剖结构也从其他类型的恐龙的凤头少年。成人波峰确实有到鼻腔的连接，但连接在乔宽得多。在该地区的骨头出现不完全僵化的，一个额外的因素，证明乔的青年。事实上，与其他凤头品种lambeosaurins甚至少年，乔的鼻腔几乎占据了整个波峰。

在琢磨这个波峰的进化生存优势，以年轻的乔及其对他所有的鸭嘴龙科的亲戚， Farke和同事写道， “ hadrosaurids的波峰是密切联系在一起的呼吸道系统集成，凭借气道穿过波峰。因此，有波峰，形成在发展的早期，只是让动物可以继续呼吸。 “ 3

 婴儿Parasarolophus的这块化石是非常完整的，缺少的只是前肢，尾巴的末端，和各种小骨头和一些骨头的地方。图片：古生物学，国际商业时报的雷蒙德M.阿尔夫博物馆

当威廉公园命名为Parasaurolophus属在1922年，他认为波峰可能已经拴在脊柱支撑头部。也有人建议波峰送达的观赏目的有关的霸主地位，侵略，或交配仪式显示器。因此，一些插图描绘这些动物与他们的波峰陪练。里面的长脊管导致进出鼻腔气道。因此，空气移动通过波峰的可能性有帮助体温调节，空气储存水下喂食，或提供一个盐腺的地方提出了建议。波峰不具有任何明显的开口到外面，所以他们没有某种辅助的鼻孔。

最明显的用途这些超鼻管，当我们想到现代的动物，会产生或扩大声音。在喉咙里发出的声音可能会通过管状通道都产生了共鸣。这让人想起，甚至我们自己的歌声通过我们远不如广泛的鼻窦共鸣给予，至少从某些人丰富饱满的声音的方式。当然，这样的共振声音的目的成为炒作的题材，但也能在光线现代的动物，他们使用各种呼叫的原因有很多的考虑。难道是某种形式的沟通，物种识别的方法，或显示声明的主导地位？也许吧。难道乔用他开发的小号打电话给他的母亲？我们无法知道，当然，但他可能可以有。

低音和高音

Farke认为，更深层次的“话语权”的成人通过其更广泛的管道产生共振的可能是越来越占主导地位的信息传达给老乡恐龙的一种方式。他说， “如果大人Parasaurolophus有”低音“的婴儿有”高音喇叭“。婴儿乔的短，小的波峰表明，它可能有一个更高的音调到它的调用比没有成年人。随着视觉上的差异，这可能有助于动物生活在同一个区域要弄清楚谁是大老板。 “ 2

虽然化石不能调用彼此的任何超过他们可以过不去，声学专家们推测，管解剖结构的化石Parasaurolophus波峰，一个成年人可能会听起来是什么样的基础上。瞧瞧吧“ Parasaurolophus的声音。 ”一个侦听器捕获的明喻的声音，评论的成人Parasaurolophus听起来像一把椅子“在地板上scootching 。 ”也许很快就有人分析乔氏解剖学 - 这是免费上网，上来了用模拟他的高音调呼叫并产生动画Parasaurolophus家庭协调两部分。

什么这些骸骨能告诉我们什么？

进化古生物学家很高兴乔，不仅获得了进入波峰的结构和功能的深入了解，也为他提供了研究如何演进想必依赖于胚胎和成年发展的时序变化的机会。这就是所谓的heterochrony 。在比较解剖学的野外生物学家比较胚胎的方式，成熟的青少年，以及不同种类的成人发展壮大。变化的时间和速率复杂的解剖结构形式产生显着的生物多样性。进化论者经常使用胚胎发育和成熟的少年，试图找出如何进化发生。他们需要解释如何和为什么这样复杂的业务流程的一个祖先动物改为发展不同种类的动物 - 例如，作为与恐龙从管状嵴头齿轮变到尖峰，旋钮，装饰，大圆顶，和各种改性角。

我们不是看到神的手，共同设计编排的常见设计以不同的方式形成。上帝创造了各种动物，包括所有的原始种类的恐龙大约6000年前，他们的设计重现和他们创造各种内变化。虽然我们不知道这些原种的样子，我们可以从甚至Parasaurolophus化石记录中看到，不同的物种在其波峰的内部解剖结构有所变化，正是因为我们会怀疑从物种形成的过程。因此，也就不从圣经的角度来看，年轻一些物种的可能开始在不同的时间表比其他人形成自己的头波峰的冲击。

是什么杀死了乔宝宝Parasaurolophus ？这是不太可能的捕食。 “没有证据显示疾病对骨骼，捕食者的攻击没有明显的证据， ” Farke说。 “骨头都好放在在一起。他们会真正得到四分五裂，如果一些捕食者攻击他们“乔的埋葬姿势是化石中非常典型：他的脖子被拱起，他的四肢蜷缩，和他的尾巴伸直。他的精美保存解剖是一个灾难性的迅速埋藏最一致的。当全球性大洪水袭击了地球少一点是4500年前，数十亿动物被灾难性掩埋的涨水和沉积物暴力浪涌，克服他们的环境，产生许多我们在化石记录中所看到的层。

因此，我们看到， “乔， ”像其他数十亿的动物，遇见了他的突然结束，作为上帝对人类的邪恶（创6:5 ）判断的结果，通过9创世记6章描述。我们从圣经知道诺亚方舟的动物（创6:17-7:5 ）将包括两名恐龙同种乔重新填充的洪水之后，虽然灭绝最终克服这些和许多其他动物。了解更多关于这些，上帝设计的神奇的动物给我们的表现在他创造了6000年前的遗传信息可以变化我们的创造者的创造力的一瞥。精湛的保鲜叫介意的判断，不仅对人的罪的洪水也诺亚方舟在基督里的安全性和可救赎的提醒。并且不无好奇的世人，甚至将当时，我们现在可以，这要归功于这个新的知识乔的少年Parasaurolophus解剖精神病参观大洪水前的世界和想象的访问者可能听说过在恐龙漫游栖息地的声音。

欲了解更多信息：

到底发生了什么恐龙？

恐龙托儿所

恐龙高速公路

古排序摇身一变恐龙三成一

鸟鸣声和鸟脑

 “ Talk是吱！ ”

野性的呼唤：露西的声音

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脚注

1 。被捕的增长（ LAG的）的线一直被认为强有力的证据表明恐龙是冷血动物，但最近的研究（ M.科勒等人， “季节性骨骼的生长和生理的吸热揭示恐龙生理学的光， ”自然（ 6月27日2012） ， DOI ： 10.1038/nature11264 ）表明这些线路在现存哺乳动物的存在了。 （这并不意味着，恐龙不是冷血，当然，只有LAG的不一定支持这种可能性。 ）返回

2 。 www.sci-news.com/paleontology/science-fossil-dinosaur-parasaurolophus-01483.htmlBack （ 1 ）回复（ 2 ）

3 。 peerj.com/articles/182返回

Week 3: Part 3

**Was the Flood of Noah Global or Local in Extent?**

**Chapter 6**

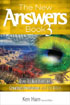
by Ken Ham and Dr. Andrew A. Snelling

April 17, 2013

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Many Christians and their leaders believe that it is not relevant whether the Flood of Noah described in [Genesis 6–8](http://biblia.com/bible/nkjv/Genesis%206%E2%80%938) was global or localized (in the Mesopotamian Valley of the Tigris and Euphrates Rivers). After all, they say, it's not relevant to a Christian's salvation, and the gospel message to be preached is all about Jesus.

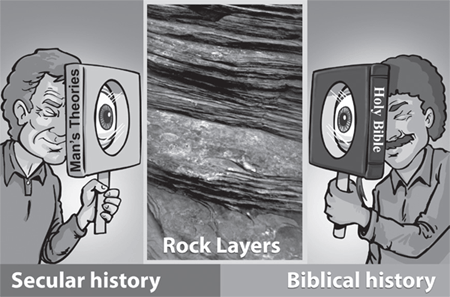
Besides, matters about rocks and the earth's history are the domain of the geologists, because the Bible isn't a science textbook. So if the geologists say there never was a global Flood, then that settles it! Thus, Christians who advocate an old earth agree with the secular geologists, and therefore they oppose any notion that the Flood of Noah was global.

However, whether the Flood of Noah was global or local in extent is a crucial question. This is because ultimately what is at stake is the authority of all of God's Word. Indeed, if the text of Scripture in Genesis 6–8 clearly teaches that the Flood was global and we reject that teaching, then we undermine the reliability and authority of other parts of Scripture, including [John 3:16](http://biblia.com/bible/nkjv/John%203.16). God's Word must be trustworthy and authoritative in all that it affirms.

**Millions of Years or a Global Flood?**

Secular geologists have interpreted the fossil-bearing sedimentary layers, such as those exposed in the walls of the Grand Canyon, as having taken millions of years to form. Countless sea creatures lived on shallow seafloors, for example, and were slowly buried, to be replaced by new sea creatures growing on the seafloors. The various sedimentary rock layers that we now see stacked up on top of one another thus supposedly slowly accumulated as sea creatures were progressively buried.

The guiding principle used by secular geologists to interpret the rock record is “the present is the key to the past,” which means that the geologic processes we see operating today, at the rates they operate today, are all that are necessary to explain the rock layers (Figure 1). While catastrophes such as local flooding and volcanic eruptions are allowable because they do occur today, any suggestion of a global catastrophic Flood as described in the Bible is totally ruled out before the geological evidence is even examined.



**Figure 1.** Two views of the rock layers: the world teaches that the vast majority of the rock layers were laid down slowly over millions of years; but in light of a global Flood in Genesis 6–9, it makes more sense that bulk of the rock layers that contain fossils were laid down during this catastrophe only thousands of years ago.

On the other hand, the description of the Flood in Genesis 6–8 is not hard to understand. We are told that the “fountains of the great deep” burst open and poured water out onto the earth's surface for 150 days (five months). Simultaneously, and for the same length of time, the “floodgates of heaven” were open, producing torrential global rainfall.[1](http://www.answersingenesis.org/articles/nab3/flood-global-or-local#fnList_1_1)

The combined result was that the waters destructively rose across the face of the earth to eventually cover “*all* the high hills under the *whole* heaven.” The mountains also were eventually covered, so that every creature “in whose nostrils is the breath of life” perished. Only Noah, his family, and all the air-breathing, land-dwelling creatures he took on board the ark were saved.

Based on that clear description of this real historical event, it is very rational to conclude that we should expect to find evidence today of billions of dead animals and plants buried in rock layers composed of water-deposited sand, lime, and mud all around the earth. And indeed, that's exactly what we do find—billions of fossils of animals and plants buried in sedimentary rock layers stretching across every continent all around the globe.[2](http://www.answersingenesis.org/articles/nab3/flood-global-or-local#fnList_1_2) So instead of taking millions of years to form, most of the fossil-bearing sedimentary rock layers, as seen in the walls of the Grand Canyon and elsewhere, could have formed rapidly during the year of this global catastrophic Flood of Noah.[3](http://www.answersingenesis.org/articles/nab3/flood-global-or-local#fnList_1_3)

It should immediately be obvious that these two interpretations of the evidence are mutually exclusive! Most of these rock layers are either the sobering testimony to Noah's Flood or the record of millions of years of history on this earth. One must be true and the other must be false. We can't consistently or logically believe in both, because the millions of years can't be fitted into the 370-day length of the global cataclysmic Flood of Noah described in Genesis 6–8. That is ultimately the fundamental reason why many old-earth advocates in the Christian community oppose the clear teaching of Scripture that the Flood was global. Only a relatively insignificant local flood would fit with the secular geological interpretation of millions of years of slow and gradual geologic processes for most of the fossil record.

**Biblical Problems**

In order to relegate Noah's Flood to being only local in extent, and/or to being a myth, the Hebrew text of Genesis 6–8 and also the larger context have to be virtually ignored.

The Book of Genesis is clearly divided into two main sections. Chapters 1–11 deal with universal origins (the material universe, the plant and animal kingdoms, humans, marriage, sin, death, redemption, the nations of the earth, etc.). Chapters 12–50, on the other hand, concentrate on the particular origin of the Hebrew nation and its tribes, mentioning other nations only insofar as they came in contact with Abraham and his descendants.[4](http://www.answersingenesis.org/articles/nab3/flood-global-or-local" \l "fnList_1_4)

The realization of this fact of the context of the Flood account within the section of Genesis on universal origins sheds important light on the question of the magnitude of the Flood. Furthermore, the biblical account of the Flood catastrophe occupies more than 3 chapters of these 11 chapters on universal origins, while only 2 chapters are devoted to the creation of all things! How important, therefore, must the Flood account be! Yet nobody denies that the account in Genesis 1–2 of the creation of all things is referring to the scale of the whole earth, and indeed the whole universe. Thus the context of Genesis 6–8 demands that the scriptural narrative be understood to be describing a watery catastrophe of global proportions.

But when we read the Flood account itself, we see this conclusion confirmed. We are immediately struck with prolific usage of universal terms such as “all,” “every,” “under heaven,” and “in whose nostrils was the breath of life.” For example, [Genesis 6:7–13](http://biblia.com/bible/nkjv/Genesis%206.7%E2%80%9313) tells us why God sent the Flood judgment:

The Lord said, “I will blot out man whom I have created from the face of the land, from man to animals to creeping things and to birds of the sky; for I am sorry that I have made them.” . . . God looked on the earth, and, behold, it was corrupt; for all flesh had corrupted their way upon the earth. Then God said to Noah, “The end of all flesh has come before Me; for the earth is filled with violence because of them; and, behold, I am about to destroy them with the earth” (NASB).

Note in particular God's emphasis on “all flesh” and “the earth,” not just some flesh or part of the earth. Also, note that the Flood came to destroy animals and birds, not just sinful humans. The Apostle Paul tells us in [Romans 8:19–23](http://biblia.com/bible/nkjv/Romans%208.19%E2%80%9323) that the whole non-human creation was subjected to the Curse because of man's sin, and thus the whole of creation suffers death and decay. So also in the Flood, the non-human creation suffered, regardless of whether animals or birds had come into close contact with sinful man or not.

Then when the Flood began, we are told in [Genesis 7:11–12](http://biblia.com/bible/nkjv/Genesis%207.11%E2%80%9312) that “all the fountains of the great deep (were) broken up,” and “the rain was upon the earth.” Again, the words “all” and “the earth” are clearly intended to imply global extent. Indeed, this usage of universal terms is prolific as the Flood account reaches a crescendo in [Genesis 7:18–24](http://biblia.com/bible/nkjv/Genesis%207.18%E2%80%9324):

The waters prevailed, and greatly increased on the earth. . . . And the waters prevailed exceedingly on the earth, and all the high hills under the whole heaven were covered. . . . and the mountains were covered. And all flesh died that moved upon the earth . . . every creeping thing . . . and every man: All in whose nostrils was the breath of the spirit of life, all that was on the dry land, died. So He destroyed all living things which were on the face of the ground. . . . They were destroyed from the earth. . . . And the waters prevailed on the earth one hundred and fifty days.



**Figure 2.** A flood that covered the highest hills by a significant amount, yet was local does not make sense!

So frequent is this use of universal terms, and so powerful are the points of comparison (“high hills,” “whole heaven,” and “mountains”), that it is extremely difficult to imagine what more could have been written under the direction of the Holy Spirit to express the concept of a global Flood! In the words of a leading Hebrew scholar of the 19th century, who strongly opposed those who tried to tone down the universal terms of the Genesis Flood account:

They have disregarded the spirit of the language, and disregarded the dictates of common sense. It is impossible to read the narrative of our chapter ([Genesis 7](http://biblia.com/bible/nkjv/Genesis%207)) without being irresistibly impressed that the whole earth was destined for destruction. This is so evident throughout the whole of the description, that it is unnecessary to adduce single instances. . . . In our case universality does not lie in the words merely, but in the tenor of the whole narrative.[5](http://www.answersingenesis.org/articles/nab3/flood-global-or-local" \l "fnList_1_5)

Something else in the Flood account is irreconcilable with the Flood being localized in the Mesopotamian Valley. In [Genesis 7:20](http://biblia.com/bible/nkjv/Genesis%207.20) we are told that “the mountains were covered.” Because water always seeks its own level, how could the mountains only be covered in one local area without also covering the mountains in all adjoining areas and even on the other side of the planet (Figure 2)? This clear statement in God's Word only makes physical and scientific sense if the Flood were global in extent.

Even the renowned and theologically liberal Hebrew scholar James Barr, then Oriel Professor of the Interpretation of Holy Scripture at Oxford University in England, was prepared to admit in a letter to David C.C. Watson dated April 23, 1984:

. . . so far as I know, there is no Professor of Hebrew or Old Testament at any world-class university who does not believe that the writer(s) of Genesis 1–11 intended to convey to their readers the ideas that . . . Noah's Flood was understood to be world-wide and extinguish all human and animal life except for those in the Ark. Or to put it negatively, the apologetic arguments which suppose . . . the flood to be a merely local Mesopotamian flood are not taken seriously by any such Professors, as far as I know.[6](http://www.answersingenesis.org/articles/nab3/flood-global-or-local" \l "fnList_1_6)

**Theological Problems**

If the Flood were only a relatively recent local event of no geologic significance, then the fossil-bearing sedimentary layers that were supposedly laid down over millions of years must have preceded the appearance of man on the earth, including Adam. After all, man only appears very recently in the fossil record. For a Christian who accepts the millions of years, this would mean that animals were living, dying, suffering disease, eating each other, and being buried and fossilized prior to Adam's appearance in the Garden of Eden. In the geologic record we find the fossilized remains of fish eating other fish, animals eating other animals, animals with diseases like cancer, and much more, which indicates that these fossils are a record of disease, violence, and death.

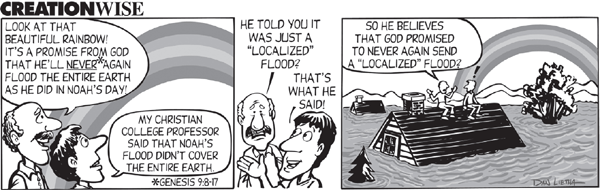
However, theologically there is a big problem here. In [Genesis 1:30–31](http://biblia.com/bible/nkjv/Genesis%201.30%E2%80%9331) we are told that when God created all the animals they all were vegetarians, and that God was pleased with everything that He had created because it was “very good.” This means that all of creation was perfect when measured against the goodness of God—the only standard God uses ([Matthew 19:17](http://biblia.com/bible/nkjv/Matthew%2019.17)).

Furthermore, it is not until after God pronounced the Curse on all of creation because of Adam and Eve's disobedience that we are told that the ground would bring forth thorns and thistles ([Genesis 3:17–18](http://biblia.com/bible/nkjv/Genesis%203.17%E2%80%9318)). But the evolutionary geologists tell us that there are fossilized thorns in Canadian sedimentary layers that are supposedly 400 million years old.[7](http://www.answersingenesis.org/articles/nab3/flood-global-or-local" \l "fnList_1_7) The Bible-believing Christian cannot accept this age-claim however.

If the plain statements of God's Word have any authority, then these fossilized thorns could only have grown after the Curse, after Adam was created by God. So the geologic record in which these fossilized thorns are found could only have been deposited after the Curse. However, the only event after the Curse that could have been responsible for burying and fossilizing these thorns, and the billions of other plants and animals we see in the vast rock layers of the earth, is the year-long Genesis Flood. This then rules out the millions of years.

Another theological problem arises when we come to [Genesis 9:11–15](http://biblia.com/bible/nkjv/Genesis%209.11%E2%80%9315). God made a promise to Noah and his descendants that “never again shall there be a flood to destroy the earth.” In other words, God was promising never to send another event like the one Noah experienced, where we are told specifically in [Genesis 7:21](http://biblia.com/bible/nkjv/Genesis%207.21) that “all flesh died.”

Obviously, if the Flood of Noah were only local in extent, then because we have seen lots of local floods since the time of Noah, that have destroyed both man and animals, God has broken His promise many times over! To the contrary, this rainbow covenant God made with Noah and his descendants could only have been kept by God if the Flood were global in extent, because never since in human history has a global flood been experienced.



**The Views of Jesus and the New Testament Authors**

The Lord Jesus Christ, God's living Word ([John 1:1–3](http://biblia.com/bible/nkjv/John%201.1%E2%80%933)), made special reference to Noah and the Flood in [Luke 17:26–30](http://biblia.com/bible/nkjv/Luke%2017.26%E2%80%9330), where He said that, “the Flood came and destroyed them all.”

There is no biblical or logical reason to assume that all of pre-Flood humanity was living in the Mesopotamian Valley. [Genesis 4](http://biblia.com/bible/nkjv/Genesis%204) indicates that early man built cities, had nomadic herds of animals, invented things, and explored the earth (v. 17–22). So if all the ungodly globally on the earth will be judged when He comes again, when Jesus by way of comparison describes the Flood and all the ungodly being destroyed by it, then He was saying that the Flood also was global.

Similarly, the Apostle Peter in [2 Peter 3:3–7](http://biblia.com/bible/nkjv/2%20Peter%203.3%E2%80%937) warned of last-days scoffers who would wilfully forget that after the earth was created by God, it perished, “being flooded with water,” and that the present earth is “reserved for fire until the day of judgment.” There are three events he is thus referring to: the creation of the world (Greek *kosmos*), the destruction of that world (Greek *kosmos*) by a watery cataclysm (the Flood), and the coming destruction of the heavens and the earth by fire in the future.

In context, it is clear that Peter had to be teaching the Flood was global, because the creation of the world was global, and the future judgment by fire will also be global. Indeed, the use of the Greek term *kosmos* for both the world that was created and the world that was flooded leaves us no doubt that the Apostle Peter, under the inspiration of the Holy Spirit, was teaching that the Flood was global in extent.

**Scientific Problems**

If the Flood were only local in extent, why did Noah have to take birds on board the ark ([Genesis 7:8](http://biblia.com/bible/nkjv/Genesis%207.8)), when the birds in that local flooded area could simply have flown away to safe unflooded areas? Similarly, why would Noah need to take animals on board the ark from his local area, when other representatives of those same animal kinds would surely have survived in other, unflooded areas?

Indeed, why would Noah have had to build the ark to the scale specified by God ([Genesis 6:15](http://biblia.com/bible/nkjv/Genesis%206.15))—300 cubits long, 50 cubits wide, and 30 cubits high, or approximately 450 feet long, 75 feet wide, and 45 feet high? With these dimensions, the total volume of the ark would have been approximately 1.45 million cubic feet, and with three decks it would have had a total deck area of approximately 98,800 square feet, equivalent to slightly more than the area of 20 standard basketball courts! The gross tonnage of the ark would have been about 14,500 tons, well within the category of large metal ocean-going vessels today.[8](http://www.answersingenesis.org/articles/nab3/flood-global-or-local" \l "fnList_1_8)

Quite obviously, an ark of such dimensions would only be required if the Flood were global in extent, designed by God to destroy all animals and birds around the world, except for those preserved on that ark. Indeed, because the Bible implies that Noah was warned 120 years before the Flood came ([Genesis 6:3](http://biblia.com/bible/nkjv/Genesis%206.3)), God could have simply told Noah and his family to migrate with any required animals and birds out of the area that was going to be flooded.

In [Genesis 1:28](http://biblia.com/bible/nkjv/Genesis%201.28) we are told that God commanded Adam and Eve to fill the earth. Adam and his descendants' life-spans were hundreds of years, in which they would have had ample time to produce many children. The chronological framework from Adam to the Flood based on the genealogies given in [Genesis 5](http://biblia.com/bible/nkjv/Genesis%205) indicates a period of 1,656 years for the human population to grow and spread around the earth in obedience to God's command.

Depending on the assumptions used for the number of children in each family, one could easily calculate, using a standard population growth equation, that the human population at the time of the Flood could have been up to a billion or more people. If so, there is no question that they would have spread beyond some localized area, and thus have required a global Flood to destroy them all. God gave a similar command to Noah and his descendants after the Flood to fill the earth ([Genesis 9:1](http://biblia.com/bible/nkjv/Genesis%209.1), [7](http://biblia.com/bible/nkjv/Genesis%209.7)), and in a matter of about 150 years God judged them for not obeying that command. Clearly, in the 1,656 years between Adam and the Flood, with the number of people in the pre-Flood population, the earth would have been filled, which is confirmed by God's assessment in [Genesis 6:13](http://biblia.com/bible/nkjv/Genesis%206.13) that because the earth was filled with violence through man's sinfulness He would destroy them “with the earth,” obviously necessitating that the Flood judgment was of global extent.

**Conclusions**

This has only been a brief survey of the problems associated with the local Flood view designed to accommodate the supposed millions of years of earth history. The Lord Jesus Christ and the Apostle Peter clearly taught that the Flood of Noah was global in extent, and both the context and the descriptive words used in Genesis 6–8 quite plainly describe the Flood as global in extent.

It wasn't until popularization of the belief in geology that only slow and gradual geological processes formed the geologic record over millions of years that the local Flood compromise became increasingly popular. Yet the Scriptures are clear that the deaths of animals and man only came into the world as a result of the Curse. So the fossils must have been produced after that tragic event. The subsequent global Flood could have produced most of the fossil-bearing sedimentary layers, including the fossilized thorns we find.

And Noah would not have needed to build an ark or take animals on board if the Flood were only local, as there was plenty of warning to escape to another region. These and many more biblical, theological, and scientific considerations make the local Flood compromise totally untenable. This is all ultimately about the authority of *all*of God's Word, which plainly teaches that the Flood of Noah was global in extent.

**Footnotes**

1. The reference to 40 days and 40 nights ([Genesis 7:12](http://biblia.com/bible/nkjv/Genesis%207.12), [17](http://biblia.com/bible/nkjv/Genesis%207.17)) appears to be telling us how long it was before the ark started to float, for the windows of heaven were closed on the same day (150th) as the fountains of the deep were ([Genesis 7:24–8:3](http://biblia.com/bible/nkjv/Genesis%207.24%E2%80%938.3)). For a detailed argument based on the Hebrew text see William Barrick, “Noah's Flood and its Geological Implications,” in Terry Mortenson and Thane H. Ury, eds., *Coming to Grips with Genesis* (Green Forest, AR: Master Books, 2008), p. 251–282. [Back](http://www.answersingenesis.org/articles/nab3/flood-global-or-local#fnMark_1_1_1)
2. See chapter 29 in this volume: Andrew A. Snelling, “[What Are Some of the Best Flood Evidences?](http://www.answersingenesis.org/articles/nab3/best-flood-evidences)” [Back](http://www.answersingenesis.org/articles/nab3/flood-global-or-local#fnMark_1_2_1)
3. Some localized fossil-bearing deposits may have formed after the Fall of Adam and Eve in sin and before Noah's Flood, and some of the localized fossiliferous rock layers at the top of the geological record were formed in post-Flood events. But creationist geologists are in general agreement that most of the fossil-bearing sedimentary rock record is a result of Noah's Flood. [Back](http://www.answersingenesis.org/articles/nab3/flood-global-or-local#fnMark_1_3_1)
4. W.H. Griffith Thomas, *Genesis: A Devotional Commentary* (Grand Rapids, MI: Eerdmans, 1946), p. 18–19. [Back](http://www.answersingenesis.org/articles/nab3/flood-global-or-local#fnMark_1_4_1)
5. M.M. Kalisch, *Historical and Critical Commentary on the Old Testament* (London: Longman, Brown, Green, et al., 1858), p. 209–210. [Back](http://www.answersingenesis.org/articles/nab3/flood-global-or-local#fnMark_1_5_1)
6. Copy of this letter on file. [Back](http://www.answersingenesis.org/articles/nab3/flood-global-or-local#fnMark_1_6_1)
7. W.N. Stewart and G.W. Rothwell, *Paleobotany and the Evolution of Plants* (Cambridge, UK: Cambridge University Press, 1993), p. 172–176. [Back](http://www.answersingenesis.org/articles/nab3/flood-global-or-local#fnMark_1_7_1)
8. For fuller details regarding the size and construction of the ark, see Tim Lovett, *Noah's Ark: Thinking Outside the Box* (Green Forest, AR: Master Books, 2008). [Back](http://www.answersingenesis.org/articles/nab3/flood-global-or-local#fnMark_1_8_1)

**(下面中文使用谷歌翻译。需要修正和编辑。)**

第3周：第3部分

是挪亚全球的洪水或局部的程度？

第6章

由肯火腿和安德鲁博士答：斯内林

2013年4月17日

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许多基督徒和他们的领导人认为这是不相关的诺亚的洪水是否在创世纪6-8描述的是全球性的或局部（在底格里斯河和幼发拉底河的美索不达米亚河谷） 。毕竟，他们说，这是不相关的一个基督教的救恩，福音的信息被宣扬是所有关于耶稣。

此外，有关岩石和地球的历史问题是地质学家的领域，因为圣经是不是科学的教科书。因此，如果地质学家说，从来没有一个全球性大洪水，那么那就解决了！因此，基督徒谁主张一个古老的地球认同世俗地质学家，因此，他们反对挪亚的洪水是全球任何概念。

然而，无论是诺亚的洪水是全球性或地方性的程度是一个关键问题。这是因为最终什么是利害攸关的是所有的神的话语的权威。事实上，如果圣经中创世纪6-8的文字清楚地告诉我们，大洪水是全球性的，我们拒绝接受教学，那么我们破坏圣经的其他部分，包括约翰福音3:16的可靠性和权威性。神的话语必须是可信的，权威的一切，它肯定。

数百万年或全球洪水的？

世俗的地质学家解释的含化石的沉积层，如在大峡谷的墙壁外露，如已采取亿万年形成。无数的海洋生物生活在浅洋底，例如，然后慢慢掩埋，被新的海洋生物在洋底不断增长所取代。各种沉积岩层，我们现在看到堆叠在另一个据说这样慢慢积累的海洋生物的顶部被逐渐埋没。

用世俗的地质学家解释岩石记录中的指导原则是“现在的关键是在过去， ”这意味着我们今天看到操作的地质过程，在他们今天的工作率，是所有必要解释岩层（图1） 。虽然灾害，如局部洪水和火山爆发是允许的，因为确实发生今天他们，正如圣经所描述的全球灾难性洪水的任何建议，完全排除了之前的地质证据，甚至检查。

图1。两种观点的岩层：世界教导岩层绝大多数被解雇慢慢放下了数百万年，但在光创世记6-9一个全球性的大洪水，它使更多的意义上，大部分岩层含有化石这场灾难中只有几千年前的规定。

在另一方面，洪水创世记6-8的描述不难理解。我们被告知， “大渊的泉源”爆开，倒入水出到地球表面150天（ 5个月） 。同时，对于相同的时间长度， “闸门天堂”是开放的，产生暴雨的全球rainfall.1

合并后的结果是，水破坏性全面上扬地球表面，最终覆盖“全天下所有的高山。 ”山也最终被覆盖，让每一个生物“在谁的鼻孔是生命的气息”灭亡了。只有挪亚，他的家人，以及所有的空气呼吸，陆生动物，他采纳了方舟得救了。

在此基础上真正的历史事件说清楚的描述，这是非常合理的得出结论，我们应该期待的亿万死去的动物和植物埋在岩层水沉积砂，石灰和泥各地的组成找到证据今天地球。事实上，这正是我们确实发现，数十亿的动物和植物的化石埋藏在沉积岩层横跨各大洲拉伸各地的globe.2所以不是采取千百万年形成，大部分含化石的沉积岩层，如大峡谷和其他地方的墙壁看到，可以迅速在Noah.3这一全球灾难性洪水的年份形成

它应该立即是显而易见的证据这两个解释是相互排斥的！大多数这些岩层要么是发人深省的证词诺亚的洪水或数百万年的历史，在这个地球上的记录。其中一个必须是真实的，而另一个一定是假的。我们不能始终如一地或在逻辑上相信这两个，因为数百万年，不能安装到诺亚的全球灾难性洪水创世记6-8中所述的370天的长度。这是最终的根本原因，许多老地球的倡导者，在基督教社会反对圣经清楚的教导，洪水是全球性的。只有相对较少的本地洪水将符合大多数化石记录的世俗地质解释万年的缓慢和渐进的地质过程。

圣经问题

为了贬谪诺亚的洪水，以暂时只在本地范围内，和/或作为一个神话，创世纪6-8的希伯来文，也是更大的范围内必须几乎忽略不计。

创世记被明显地分为两个主要部分。 1-11章处理通用的起源（宇宙的物质，在植物和动物王国，人类，婚姻，罪恶，死亡，救赎，地球上的国家，等等） 。章节12-50 ，在另一方面，集中在希伯来民族和部落的特殊渊源，提到其他国家只有只要他们进来了亚伯拉罕和他descendants.4接触

的洪水账户创世记普遍起源段内的形势下对这一事实的认识揭示了洪水的大小的问题重要的光。此外，圣经记载的洪水灾难中占有的普遍起源这11个章节超过3章，而只有2章致力于创造万物！多么重要，因此，必须在洪水帐户！然而，没有人否认，在创世纪1-2万物的帐户是指整个地球的规模，乃至整个宇宙。因此，创世纪6-8的情况下要求圣经的叙事被理解为描述全球性的水汪汪的大灾难。

但是，当我们读到洪水帐户本身，我们看到了这样的结论证实。我们会立即袭击具有普遍诸如“所有”，“每一个”多产使用“天下”和“在谁的鼻孔是生命的气息。 ”例如，创世纪6:7-13告诉我们，上帝为什么发送洪水的判断：

主说： “我会抹杀人的人我是从土地的面貌创造，从人到动物爬行的东西，天空的飞鸟，因为我很抱歉，我造他们。” 。 。神看着在地上，不料，它是败坏了。凡有血气的，已经在地上损坏他们的方式。神对挪亚说： “凡有血气的结束已经来到我面前，因为地上满的，因为他们的暴力，你看，我将摧毁它们与地球” （ NASB） 。

特别注意的是上帝所强调的“凡有血气的”和“地球”，不只是一些肉或地球的一部分。另外请注意，在洪水来毁灭动物和鸟类，不只是罪恶的人类。使徒保罗告诉我们在罗马书8:19-23 ，整个非人类的受造之物，因为人的罪的诅咒，因而整个创作受到死亡和腐烂。所以也在洪水，非人为创造遭遇，无论动物或禽鸟曾与罪人与否密切接触。

然后，当洪水开始，我们被告知在创世记7:11-12说，“大渊的泉源都（是）打散， ”和“雨在地上。 ”再一次，改为“所有”和“大地”显然意在暗示全球范围。事实上，这种用法通用条款是多产的洪水账户达到创世纪7:18-24高潮：

水势浩大，而且大大提高了地球上。 。 。 。和水极其浩大，在地上，整个天下所有的高山都淹没了。 。 。 。和高山都淹没了。凡有血气的都死了感动在地上。 。 。每一个蠕动的东西。 。 。各人：所有在其鼻孔有生命的精神的气息，一切是在旱地上，死了。所以他摧毁一切生物的在地面上的人脸。 。 。 。他们从地上除灭。 。 。 。水势浩大，在地上150天。

图2。洪水所覆盖的一个显著量最高的山丘，但为当地没有意义！

所以经常是这样使用的通用术语，和如此强大的比较点（ “高山”，“天下”和“山” ） ，这是极难想像还有什么可以写所指的方向圣灵来表达一个全球性大洪水的概念！在领先的希伯来学者在19世纪，谁强烈反对那些谁试图淡化创世纪洪水帐户的通用条款的话：

他们忽视了语言的精神，无视常识的使然。这是不可能阅读我们的章（创世记7 ）的叙述而不不可抗拒深刻的印象，整个地球就注定毁灭。之所以如此，是显而易见的整个描述的，这是不必要援引单个实例。 。 。 。在我们的例子普遍性，不在于话仅仅是，但在整个narrative.5的男高音

别的东西在洪水帐户是不可调和的洪水被定位于美索不达米亚河谷。在创世记7:20 ，我们被告知， “大山都淹没了。 ”因为水总是寻求自己的水平，怎么可能在山上只能覆盖一个区域也没有覆盖的群山中的所有毗邻地区，甚至在另一边地球的（图2） ？在神的话语此明确声明，不仅使物理和科学意义，如果洪水是全球性的程度。

即使是著名的和神学自由主义希伯来语学者詹姆斯·巴尔，然后奥丽尔教授圣经在英国牛津大学的解释，准备在信中承认大卫CC沃森日期为1984年4月23日：

。 。 。据我所知，有一个在任何世界一流大学谁不相信创世记1-11章的作者（ S）旨在传达给读者的思想，没有教授希伯来语或旧约。 。 。诺亚的洪水被理解为世界各地及熄灭所有人类和动物的生命，除了那些在方舟还是把它否定的，该道歉的论点假设。 。 。洪水是一个仅是局部的美索不达米亚的洪水不会认真对待任何有关教授，据我know.6

神学问题

如果洪水只是没有地质意义比较近期的本地事件，那么这是所谓放下了数百万年的含化石的沉积层必须有前面的人在地球上出现，包括亚当。毕竟，男人只出现在最近的化石记录。对于一个基督徒谁接受了数百万年，这将意味着，动物的生活，死亡，痛苦的疾病，吃对方，被前亚当的出现在伊甸园里埋葬和化石。在地质记录，我们发现鱼的化石遗迹吃其他鱼类，动物吃其他动物，动物的疾病，如癌症，等等，这表明这些化石是疾病，暴力和死亡的记录。

然而，神学上有一个很大的问题就在这里。在创世记1:30-31告诉我们，当上帝创造了所有的动物，他们都是素食主义者，而且上帝很高兴，他创造了，因为它是一切“很不错。 ”这意味着，所有的创造是完美的，当衡量上帝的唯一标准用途的神的恩慈（马太福音19点17 ） 。

此外，它不是直到神，因为亚当和夏娃的悖逆，我们被告知，地面会带来荆棘和蒺藜（创3:17-18 ）的发音诅咒所有的创造。但进化地质学家告诉我们，有在加拿大沉积层是假想4亿年old.7该相信圣经的基督徒无法接受这个年龄，但是索赔刺化石。

如果神的话语平淡报表有任何权限，那么这些刺化石只可能生长的诅咒后，在亚当是上帝创造的。因此，地质记录中，这些刺化石的发现只能被诅咒后沉积。不过，这可能是负责埋葬和僵化这些荆棘诅咒，和其他数十亿的植物和动物，我们在地球的巨大岩石层看到后的唯一事件，就是长达一年的创世纪洪水。这就排除了数百万年。

当我们来到创世记9:11-15另一个神学问题出现。神应许给挪亚和他的子孙说：“不会再必有洪水毁灭地球。 ”换句话说，上帝从来没有许诺送另一个事件像一个诺亚经历，在这里我们在创世记7明确告诉： 21 ，“一切肉体死了。 ”

显然，如果诺亚的洪水只在局部范围内，则是因为我们自挪亚的时候看到很多当地的洪水，两个人与动物所毁灭的，上帝已经打破了他的应许许多倍！相反，这个彩虹之约上帝与挪亚和他的后代做只能一直保持了上帝，如果洪水是全球性的程度，因为从来没有因为在人类历史上有一个全球性的洪水已经经历过。

耶稣和新约作者的意见

主耶稣基督，上帝的活的话（约翰福音1:1-3 ） ，在路加福音17:26-30 ，在那里他说，特别提到挪亚和洪水“洪水来了，他们全都灭了。 ”

有没有圣经或合乎逻辑的理由来假设所有的大洪水前的人类生活在美索不达米亚河谷。创世记4表明，早期人类建造的城市，有动物的游牧牛群，发明的东西，并探索地球（五17-22 ） 。所以，如果所有的恶人全球在地球上，当他再次来临时，当耶稣被比较的方式描述了洪水和所有不敬虔的人被它摧毁，然后他说，洪水亦是全球必怎样被论断。

同样，使徒彼得在彼得后书3:3-7警告的最后几天嘲笑者谁也故意忘记，地球是上帝创造之后，就灭亡了， “被大水淹没， ”而目前的地球“保留。火灾，直到审判的日子“有三件大事，他是这样提到：创造世界（希腊KOSMOS ） ，即世界的毁灭（希腊KOSMOS ）由水汪汪大灾难（洪水） ，以及未来毁灭天地万物由火在未来。

在上下文中，很显然，彼得不得不教学洪水是全球性的，因为创造世界是全球性的，并通过消防未来的判断也将是全球性的。事实上，使用这个希腊词KOSMOS的创建的被淹没的两个世界，世界留给我们毫不怀疑，使徒彼得在圣灵的启示下，被教导说，洪水是全球性的程度。

科学问题

如果洪水只是局部的范围内，为什么诺亚不得不采取鸟类板方舟（创7时08分） ，当在本地淹没区的鸟类可以简单地飞走安全被淹没的地区？同样，为什么诺亚需要采取在船上的动物方舟从他的局部区域，当这些相同的动物种的其他代表一定会存活在其他，被淹没的地区？

事实上，为什么会诺亚不得不建造方舟，以神（创世纪6:15 ） -300肘长， 50肘，宽30肘，或大约450英尺长75英尺宽， 45英尺指定的刻度高？有了这些尺寸，方舟总量将约为1450000立方英尺，并与三层甲板，将有一个桥面总面积约98800平方英尺，相当于比20个标准篮球场的面积略多！方舟的总吨位本来约14500吨，内以及大型金属远洋船只today.8类别

很明显，只需要这样尺寸的方舟，如果洪水是全球性的程度，由上帝设计用来摧毁世界上所有的动物和鸟类，除了那些保存​​在该柜。事实上，因为圣经意味着诺亚被警告120年之前，洪水就来（创6:3 ） ，神可以简单地告诉挪亚和他的家人迁移与任何所需的动物和鸟类进出该地区的打算被淹没。

在创世记1:28 ，我们被告知，神吩咐亚当和夏娃，填补了地球。亚当和他的子孙的生命跨度是几百年，在他们将有足够的时间来产生许多儿童。从亚当的年代框架的基础上创世记5中给出的家谱洪水指示周期的1,656年的人口在顺服神的命令，生长和扩散环绕地球。

根据所使用的儿童在每个家庭，人们可以很容易地计算出，使用标准的人口增长方程，即人类群体在洪水的时候本来是多达十亿或更多的人的数量的假设中。如果是的话，毫无疑问，他们会扩散到某些局部区域，因而需要有一个全球性的洪水摧毁他们所有。上帝给了一个类似的命令挪亚和他的后裔洪水遍满全地（创世纪9:1 ， 7 ） ，并在约150年的事神审判他们不服从该命令。显然，在亚当和洪水，随着人们在洪水前的人口数量之间的1656年，地球就会被填满，这是上帝在创世纪6点13分的评估证实，因为地上满了强暴通过人的罪，他将摧毁他们“与地球”，显然迫使大洪水的判断是全球范围。

结论

这仅是与当地洪水视图设计，以适应该咋办数百万年的地球历史相关的问题的简要调查。主耶稣和使徒彼得清楚地教导说，诺亚的洪水是在全球范围内，两者的背景和创世纪6-8中使用的描述性词语一清二楚形容洪水作为全球性的程度。

但直到那只是缓慢和渐进的地质作用形成的地质记录了数百万年，当地洪水妥协变得越来越流行，相信在地质学普及。然而，圣经是清楚的，动物和人的死亡只是来到这个世界的诅咒所致。因此，化石必须具有悲剧性事件之后被生产。随后的全球性大洪水可能产生的大部分含化石的沉积层，包括我们找到了化石的荆棘。

挪亚就不会需要建造方舟或采取动物在船上，如果洪水只是局部，因为有大量的警告逃离到另一个地区。这些以及更多的圣经，神学和科学的考虑使当地洪水妥协完全站不住脚的。这是所有最终所有的神的话语，这清楚地告诉我们，挪亚的洪水程度上是全球性的权威。

脚注

1 。参考40天40夜（创7时12分， 17）似乎在告诉我们它有多长方舟开始漂浮，对天上的窗户前，于同日被关闭（ 150 ）作为喷泉深分别为（创7:24-8:3 ） 。对于基于希伯来文的详细参数见威廉·巴里克， “诺亚的洪水及其地质意义， ”在特里摩顿森和泰恩H.尤里合编，开始应付创世记（绿色森林， AR ：硕士图书， 2008年）。号码。 251-282 。后面

2 。参见第29章本卷：安德鲁A.斯内林，“什么是一些最好的洪水证据吗？ ”返回

3 。一些本地化的化石息存款可能已亚当和夏娃在犯罪堕落之后和挪亚洪水之前形成的，和一些本地化的化石岩层的地质记录的顶部形成在洪水后的事件。但创造论地质学家大致赞成，大部分含化石的沉积岩记录的是诺亚的洪水所致。后面

4 。 W.H.格里菲斯托马斯，创世纪：一个虔诚的评论（密西根州大急流市： Eerdmans ， 1946） ，页。 18-19 。后面

5 。 M.M. KALISCH ，在旧约历史和重要的评注（伦敦：朗曼，棕色，绿色等， 1858） ，页。 209-210 。后面

6 。这封信上的文件的副本。后面

7 。 W.N.斯图尔特和G.W.罗斯韦尔，古植物学和植物（英国剑桥：剑桥大学出版社， 1993）的演变，第172-176 。后面

8 。有关方舟的尺寸和结构更详尽的资料，请参阅蒂姆·洛维特，诺亚方舟：思考外箱（绿色森林， AR ：硕士图书， 2008年）。后面

Week 3: Part 4

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www.answersingenesis.org/articles/arj/v6/n1/goodness-of-creation

**Thoughts on the Goodness of Creation: In What Sense was Creation “Perfect”?**

**by Lee Anderson**

**November 13, 2013**



**Abstract**

In the early days of the young-earth creationist movement, a number of publications promoted the notion that the second law of thermodynamics was introduced as a result of the curse. This view has been accepted, sometimes blindly so, by certain contemporary creationists as well. This paper surveys a collection of the early creationist publications, and then addresses the question of whether it is warranted to view God’s pronouncement in [Genesis 1:31](http://biblia.com/bible/nkjv/Genesis%201.31) that His creation was “very good” as necessitating the absence of a tendency toward increased entropy. It also considers whether there is exegetical warrant for linking the curse pronounced in Genesis 3 with the introduction of the second law of thermodynamics. The paper contends that there is no real biblical evidence to suggest that the second law was inoperable prior to the curse. It argues rather that the second law was in effect from the beginning of creation. However, the tendency toward entropy implicit in the second law was never of a kind that conflicted with God’s declaration that the creation was “very good,” or that eventuated in the death of any sentient creature.

**Keywords**: curse; death; decay; deterioration; entropy; fall; Morris, Henry; thermodynamics, second law; Whitcomb, John; Williams, Emmett; young-earth creationist movement

**Introduction**

The second law of thermodynamics is a universally recognized scientific principle. It states that within a closed system, “every naturally occurring transformation of energy is accompanied, somewhere, by a loss in the availability of energy for the future performance of work” (Lindsay 1959, p. 379). Herein is found a “general natural tendency of all observed systems to go from order to disorder” (Lindsay 1968, p. 100). Addressing the consequences of the second law for the theory of evolution, creationist Thomas Barnes correctly argued that the second law of thermodynamics is the “irreversible tendency for processes in a self-contained system to go toward lower order” (Barnes 1966, p. 5). He maintained that this invariably results in “an increase in randomness, disorder, and decay if the whole system is taken into account. That is to say that systems run down hill, not up hill; they don’t wind themselves up; they tend to run down” (Barnes 1966, p. 5).

At the inception of the modern young-earth creationist movement, a number of important early writings promoted the notion that the second law of thermodynamics was introduced as a result of the curse in [Genesis 3](http://biblia.com/bible/nkjv/Genesis%203). It may be impossible to say where this idea actually began; however, its appearance in *The Genesis Flood* by John Whitcomb and Henry Morris in 1961 can probably be marked as the earliest time that it appeared in a major publication having any notable influence on the creationist movement. Whitcomb and Morris stated, “Creation . . . actually has been accomplished by means of creative processes, which are now replaced by the deteriorative processes implicit in the second law” (Whitcomb and Morris 1961, pp. 224–225). They attributed the intrusion of the second law to the curse ultimately resultant from Adam’s sin (cf. [Genesis 3:17](http://biblia.com/bible/nkjv/Genesis%203.17)), that is the “bondage of decay” to which the world has been “subjected” to by God for the present age ([Romans 8:20–22](http://biblia.com/bible/nkjv/Romans%208.20%E2%80%9322)).

Two years later, in *The Twilight of Evolution*, Morris, addressing the universality of the second law argued, “It is strictly an empirical law, which has always been found to be true wherever it could be tested, but for which there is no known natural explanation” (Morris 1963, p. 37). He continued, “the Biblical explanation is that it is involved in the curse of God upon this world and its whole system, because of Adam’s sin” (Morris 1963, p. 37). For Morris, the direct equation between the curse—that is, “the second great revealed fact of earth history”—and the second law was obvious. He stated, “The second law of thermodynamics has been seen to approximate a scientific statement of the effects of the curse” (Morris 1963, p. 58).

The influence of eschatology weighed heavily on Morris’s view. He argued that the statement “very good” ([Genesis 1:31](http://biblia.com/bible/nkjv/Genesis%201.31)) “is clarified by the description of conditions in the new earth, which will be created by God after this present system has passed away” (Morris 1963, p. 72). [Revelation 21:4](http://biblia.com/bible/nkjv/Revelation%2021.4) promises a world devoid of sorrow, pain, crying, and death—all of which are directly associated with the curse as demonstrated by the parallel statement in [Revelation 22:3](http://biblia.com/bible/nkjv/Revelation%2022.3), which says “there shall be no more curse.” Morris concludes, “the Bible teaches that, originally, there was no disorder, no decay, no aging process, no suffering, and above all, no death, in the world when the creation was completed. All was ‘very good’” (Morris 1963, p. 37).

Following this line of reasoning, Morris further claimed that in the heavenly state, “there will be no evidence of the effects of sin, disorder, decay, and death. The second law of thermodynamics will no longer control physical processes” (Morris 1963, p. 72).

Soon after Morris’s work, Emmett Williams latched on to Morris’s view of the connection between the curse and the second law of thermodynamics. His conclusions were perhaps more extreme than those of Morris. He wrote, “The creation process would be of course directly opposite to the entropy principle of present scientific processes.” Similarly, “If the perfect holy God created; then the creation would be perfect. Here would be perfection in nature, perfection in the universe, and as for the solid state, perfect crystals” (Williams 1966, p. 23). This is, of course, in direct contrast with what is found today. Williams thus argued that this drastic change from order to disorder “must have occurred by divine edict later than [Genesis 1:31](http://biblia.com/bible/nkjv/Genesis%201.31). He spoke all nature into being, and then cursed His perfect creation because of man’s sin” (Williams 1966, p. 23). As it relates to the physical world, he suggested that, “the perfectly ordered crystalline materials that God created have degenerated into atomically disordered materials because of the operation of the second law of thermodynamics” (Williams 1966, p. 23).

In expanding upon his point, the fact that Williams invariably saw the deterioration and decay processes implicit in the second law as resulting in death is evident. He wrote, “Death causes the body to return to the dust, or in other words, the body has now come into equilibrium with its surroundings. [Ecclesiastes 3:20](http://biblia.com/bible/nkjv/Ecclesiastes%203.20) has been satisfied; death is a manifestation of the second law of thermodynamics” (Williams 1969, p. 144). He later surmised, “The second law of thermodynamics is a scientific statement of the Scriptural principle of disorder and death” (Williams 1969, p. 147). Williams further stated, “Morris suggests that the second law of thermodynamics originated when God cursed the creation because of Adam’s sin. At that point death entered the physical universe. Disordering and decay processes began in all natural operations ([Romans 8:20](http://biblia.com/bible/nkjv/Romans%208.20), [22](http://biblia.com/bible/nkjv/Romans%208.22))” (Williams 1969, p. 146). So too, in a later publication he said of [Romans 8:20](http://biblia.com/bible/nkjv/Romans%208.20) and [22](http://biblia.com/bible/nkjv/Romans%208.22), “These are essentially scriptural statements of the second law of thermodynamics” (Williams 1970, p. 49).

Williams was not the only proponent of this position. Writing in 1972, John Whitcomb’s book *The Early Earth* briefly echoed the argument set forth in *The Genesis Flood* a decade before. He described the present state of humanity as one “subject to the Edenic curse” and “trapped in the pincers of the first and second laws of thermodynamics,” such that “we cannot really picture a genuine creation of things, or a sudden reprogramming of living things to ‘the bondage of corruption’” (Whitcomb 1972, p. 136).[1](http://www.answersingenesis.org/articles/arj/v6/n1/goodness-of-creation#fnList_1_1)

To this point, arguments connecting the second law of thermodynamics with the curse had appeared in specialty creationist publications. However, in 1976, the view was advanced in Morris’s *The Genesis Record*, which became a popular commentary among conservative evangelical Christians. Commenting on Genesis 3:17–19, Morris wrote:

It is universal experience that all things, living or nonliving, eventually wear out, run down, grow old, decay, and pass into the dust. This condition is so universal that it was formalized about a hundred years ago (by Carnot, Clausius, Kelvin, and other scientists) into a fundamental scientific law, now called the Second Law of Thermodynamics. (Morris 1976, pp. 126–27)

He further pointed out the obvious contrast between the creation account and the present world, “Instead of all things being ‘made’—that is, organized into complex systems—as they were in Creation Week, they are now being ‘unmade,’ becoming disorganized and simple. Instead of life and growth, there comes decay and death” (Morris 1976, p. 127). He concluded, “This, then, is the *true origin of the strange law of disorder and decay, the universally applicable, all-important Second Law of Thermodynamics. . . . . Man is a sinner and has brought God’s curse on the earth*” (Morris 1976, p. 127, emphasis added).

The notion that the second law of thermodynamics began with the curse has major ramifications concerning the natural order. Perhaps recognizing some of the difficulties of his position, Morris later modified his view somewhat. In 1981, he wrote:

In the primeval creation, however, even though what we might call “decay” processes certainly existed (e.g., digestion, friction, water erosion, wave attenuation, etc.), they must have all balanced precisely with “growth” processes elsewhere either within the individual system or, perhaps more commonly, in an adjacent system, so that the entropy of the world as a whole would stay constant. . . . Every process and machine would have 100% efficiency, with all input energies being converted completely into useful work. Even the heat energy employed in processes necessitating the force of friction for their operation would be completely productive, with no energy being “lost.” No parts would wear out, no organism would “age” past the point of maximum vigor and productivity, and everyone could easily design and build perpetual motion machines! The above is obviously imaginative, and no doubt imprecise and incomplete, but it could not be too far off. Everything was designed by an omniscient, omnipotent God to be “very good.” (Morris 1981, p. 129)

Morris maintained, however, that, “there has been a drastic amendment to the second law.” Whereas the death of animals and humans had not existed before the Fall, “now everything is proceeding back to the dust, according to the second law of thermodynamics.” He contended, “The formal announcement of the second-law in its post-Fall form is found in [Genesis 3:17–20](http://biblia.com/bible/nkjv/Genesis%203.17%E2%80%9320)” (Morris 1981, p. 129). Morris therefore surmised, “The curse extended in like form to all of man’s dominion. Man had brought spiritual disorder into his own dominion; God appropriately imposed a principle of physical disorder on that dominion as befitting its spiritual condition” (Morris 1981, p. 130).

It is debatable whether this clarification helped, for it arbitrarily distinguished the working of the second law of thermodynamics before the Fall and its working after the Fall. It so qualified the second law’s operation before the Fall that it does not sound anything at all like the second law that is active in the world today. If anything, Morris’s modified position was more of a fanciful conjecture than a theory (cf. Faulkner 2013, p. 401). Morris concluded, “Thus, as best as we can understand both Scripture and science, we must date the establishment of the second law of thermodynamics, in its present form at least, from the tragic day on which Adam sinned” (Morris 1981, p. 130).

How much resistance there was to this view in the first several decades of the modern creationist movement would be impossible to quantify. Unfortunately, little in the way of scientific or theological critique of the equation between the second law of thermodynamics and the curse was ever published in creationist literature. The dissenting position was, until quite recently, perhaps best represented by Thomas Barnes: “*The Second Law of Thermodynamics began after the existence of a fully wound-up system with Living Maturity*” (Barnes 1966, p. 7). This statement strongly implies that Barnes believed the second law began before the Fall.

More recently, other creationists have objected to the equation between the second law of thermodynamics and the curse; however, again, little has been written at length on the subject other than the brief remarks of Jonathan Sarfati (2002). He notes that the second law and its accompanying tendency toward disorder is not always harmful. He names several examples where this is the case: (1) digestion, that is, the breaking down of complex food molecules into their simple building blocks; (2) friction, which turns ordered mechanical energy into disordered heat; (3) heat transfer (for example, from the sun to the earth); and (4) breathing, that is, the movement of gas from a high pressure to a low pressure. According to Genesis 1 and 2, all of these processes were part of the pre-Fall world. Sarfati concludes, “all beneficial processes in the world . . . increase the *overall* disorder of the universe because the disorder of the surroundings is increased more than that of the system is reduced, showing that the second law is not inherently a curse” (Sarfati 2002, p. 216).[2](http://www.answersingenesis.org/articles/arj/v6/n1/goodness-of-creation#fnList_1_2)

As Sarfati explains, there are scientific problems with the notion that the second law of thermodynamics did not exist prior to the curse. The question to be asked, however, is whether the biblical text actually makes any claim regarding the existence or nonexistence of the second law prior to the events of Genesis 3. Specifically, (1) does the pronouncement of “very good” in [Genesis 1:31](http://biblia.com/bible/nkjv/Genesis%201.31) indicate, as some would claim, that the second law was non-operational? (2) Does “very good” equate to the type of perfection assumed that would exclude the transfer of energy as required by the second law? Furthermore, (3) if the text does not exclude the existence of the second law prior to the curse, need it be assumed that the effects of the second law invariably resulted in physical decay, unhealthy deterioration, and, ultimately, death? The following section of this paper will examine the factors involved in answering these questions.

**Evaluation**

On evaluation of the history of the view that the second law of thermodynamics began with the curse, it can be seen that the crux of the issue revolves around the pronouncement in [Genesis 1:31](http://biblia.com/bible/nkjv/Genesis%201.31), that all was “very good.” It is assumed that the pronouncement equates to the total absence of any kind of tendency toward entropy, or, at the very least, that all such tendencies were neutralized in a way so as to retain absolute efficiency; but is this really what is meant?

The concept of “goodness,” represented in [Genesis 1:31](http://biblia.com/bible/nkjv/Genesis%201.31) by the Hebrew טוֹב, is outlined by Koehler and Baumgartner (2001, pp. 370–71).[3](http://www.answersingenesis.org/articles/arj/v6/n1/goodness-of-creation#fnList_1_3) Its semantic range includes (1) *merry* ([Esther 5:9](http://biblia.com/bible/nkjv/Esther%205.9);[Proverbs 15:15](http://biblia.com/bible/nkjv/Proverbs%2015.15)); (2) *pleasant, desirable* ([Genesis 2:9](http://biblia.com/bible/nkjv/Genesis%202.9); [3:6](http://biblia.com/bible/nkjv/Genesis%203.6); [49:15](http://biblia.com/bible/nkjv/Genesis%2049.15)); (3) *in order, usable* ([Genesis 41:35](http://biblia.com/bible/nkjv/Genesis%2041.35); [2 Kings 3:19](http://biblia.com/bible/nkjv/2%20Kings%203.19), [25](http://biblia.com/bible/nkjv/2%20Kings%203.25)); (4) *qualitatively good, efficient* ([2 Samuel 17:7](http://biblia.com/bible/nkjv/2%20Samuel%2017.7); [Job 10:3](http://biblia.com/bible/nkjv/Job%2010.3)); (5) *pleasing, beautiful* ([Genesis 26:7](http://biblia.com/bible/nkjv/Genesis%2026.7); [Exodus 2:2](http://biblia.com/bible/nkjv/Exodus%202.2)); (6) *friendly, kind* ([Genesis 31:24](http://biblia.com/bible/nkjv/Genesis%2031.24), [29](http://biblia.com/bible/nkjv/Genesis%2031.29); [2 Chronicles 10:7](http://biblia.com/bible/nkjv/2%20Chronicles%2010.7)); (7) *good as to character and value* ([Genesis 2:12](http://biblia.com/bible/nkjv/Genesis%202.12); [Exodus 3:8](http://biblia.com/bible/nkjv/Exodus%203.8); [Ecclesiastes 7:1](http://biblia.com/bible/nkjv/Ecclesiastes%207.1)); and (8) *morally good* ([Hosea 8:3](http://biblia.com/bible/nkjv/Hosea%208.3); [Micah 6:8](http://biblia.com/bible/nkjv/Micah%206.8)).[4](http://www.answersingenesis.org/articles/arj/v6/n1/goodness-of-creation#fnList_1_4)

Clearly, טוֹב has an expansive semantic range, expressive of the concept of “goodness” in relation to the practical, the esthetic, and the moral. Robert Gordon rightly summarizes:

In general usage “good” indicates a state or function appropriate to genre, purpose, or situation. Thus, the fruit of the trees in Eden is described as “good for food” ([Gen 2:9](http://biblia.com/bible/nkjv/Gen%202.9); cf.[3:6](http://biblia.com/bible/nkjv/Gen%203.6)), and the first ears of corn in Pharaoh’s dream are “good” ([Gen. 41:5](http://biblia.com/bible/nkjv/Gen.%2041.5), [22](http://biblia.com/bible/nkjv/Gen%2041.22), [24](http://biblia.com/bible/nkjv/Gen%2041.24), [26](http://biblia.com/bible/nkjv/Gen%2041.26)). Words uttered appropriate to a situation or need are similarly described ([Prov 15:23](http://biblia.com/bible/nkjv/Prov%2015.23" \t "_blank); perhaps cf. [1 Sam 9:10](http://biblia.com/bible/nkjv/1%20Sam%209.10)), and the advice of Ahithophel in relation to Absalom’s battle plans is pronounced “good,” even though in the event it was not followed because “the LORD had determined to frustrate the good advice of Ahithophel in order to bring disaster on Absalom” ([2 Sam 17:14](http://biblia.com/bible/nkjv/2%20Sam%2017.14)). (Gordon 1997, p. 353)

Andrew Bowling, though arranging his categories of meaning slightly differently than do Koehler and Baumgartner, makes a crucial point in noting that these meanings are not mutually exclusive; there is flow and overlap between them. He writes:

Some usages blend two or more of the meanings discussed above. The “good land” of the Old Covenant included practical, economic, and esthetic overtones ([Deut 1:25](http://biblia.com/bible/nkjv/Deut%201.25); [Josh 23:13](http://biblia.com/bible/nkjv/Josh%2023.13)). Likewise, the concept of God as “good” is rich with the overtones of all possible meanings of the term “good” ([1 Chr 16:34](http://biblia.com/bible/nkjv/1%20Chr%2016.34); [Ps 145:9](http://biblia.com/bible/nkjv/Ps%20145.9)). (Bowling 1980, p. 346)

The pivotal question, however, is, in view of the immediate context of Genesis 1–2, what can be said about the extent of the meaning of “very good” in [Genesis 1:31](http://biblia.com/bible/nkjv/Genesis%201.31)? The goodness of creation as indicated by pronouncement in [Genesis 1:31](http://biblia.com/bible/nkjv/Genesis%201.31) is commonly viewed in relation to three aspects of goodness, each of which can be validated by the surrounding context and other Scriptures: completeness, purpose, and morality. [Genesis 1:31](http://biblia.com/bible/nkjv/Genesis%201.31) thus proclaims the creation complete, lacking in nothing with respect to what God intended to create (cf. [Genesis 2:1–3](http://biblia.com/bible/nkjv/Genesis%202.1%E2%80%933)). Additionally, it proclaims that creation fulfills its purpose, achieving that for which God designed it (cf. [Romans 11:36](http://biblia.com/bible/nkjv/Romans%2011.36); [Colossians 1:16](http://biblia.com/bible/nkjv/Colossians%201.16)).[5](http://www.answersingenesis.org/articles/arj/v6/n1/goodness-of-creation#fnList_1_5) Moreover, especially when understood in light of the events that transpired in Genesis 3, indicates that creation is morally good, without sinful corruption.

With respect to the completeness of creation, Umberto Cassuto commented:

[N]ow God saw EVERYTHING that He had made, the creation in its totality, and He perceived that not only were the details, taken separately, good, but that each one harmonized with the rest; hence the whole was not just good, but very good. An analogy might be found in an artist who, having completed his masterpiece, steps back a little and surveys his handiwork with delight, for both in detail and in its entirety it had emerged perfect from his hand. (Cassuto 1961, p. 59)

Kenneth Matthews has likewise pointed out the importance of completeness:

[God’s] highest acclaim is withheld until the completed creation because only after the six creation days has the lifeless earth been fully changed (1:2). Now the earth as a result of God’s “Spirit” and animated word is well-ordered, complete, and abounding in life-forms under the watch care of royal humanity. (Matthews 1996, p. 175)

James Dixon, though writing with a more devotional flavor, remarked similarly:

The “very good” statement of 1:31 shows completeness. Each entity of creation is good, but when it is seen in complement to the other parts of creation, it is very good. Each part has independence as a direct creation of God, but it needs the rest of creation to fulfil its own intended purpose. (Dixon 2005, p. 44)[6](http://www.answersingenesis.org/articles/arj/v6/n1/goodness-of-creation#fnList_1_6)

Dixon’s remark also hints at the second aspect of creation’s goodness brought out by God’s pronouncement, that is, its ability to fulfill God’s purposes for it. He further noted:

God is saying, “It is what I intended it to be.” Everything created is capable of fulfilling its intended purpose. The creation is not “good” in the sense that goodness is inherent in the creation. Inherent goodness can belong only to God. “Goodness” in the creation is derived from fulfilling God’s intended purpose for it. As God completes his creation, everything is in place for the complete fulfillment of God’s purpose. (Dixon 2005, p. 44)[7](http://www.answersingenesis.org/articles/arj/v6/n1/goodness-of-creation#fnList_1_7)

The goodness of creation with respect to the fulfillment of God’s purpose for it is a point discussed at some length by Francis Schaeffer:

[V]erse 31 sums up the whole of God’s judgment . . . . This is not a relative judgment, but a judgment of the holy God who has a character and whose character is the law of the universe. His conclusion: Every step and every sphere of creation, and the whole thing put together—man himself and his total environment, the heavens and the earth—conforms to myself. Everything at each of the various levels of creation fulfills the purpose of its creation. . . . Thus we find a doxology in all of creation—everything glorifying to God on its own level. . . . Each thing stands in proper relationship to God and speaks of what God is. And because each thing is functioning in the total context of what God is (God’s being there as the Creator) and because each is functioning perfectly on the level for which it was made, all things are fulfilled on their own level—the machine, the animal, and man himself. (Schaeffer 1972, pp. 55–56)

C. F. Keil, though briefer, has stated essentially the same thing:

God saw His work, and *behold it was all very good*; i.e., everything perfect in its kind, so that every creature might reach the goal appointed by the Creator, and accomplish the purpose of its existence. By the application of the term “good” to everything that God made, and the repetition of the word “very” at the close of the whole creation, the existence of anything evil in the creation of God is absolutely denied, and the hypothesis entirely refuted that the six days’ work merely subdued and fettered an ungodly, evil principle, which had already forced its way into it. (Keil 2011, pp. 41–42)

Notably, Keil asserted that the pronouncement, “very good,” is, in addition to all other things that it indicates, a moral evaluation. Gerhard von Rad is also correct in his observation:

This statement [“very good”], expressed and written in a world full of innumerable troubles, preserves an inalienable concern of faith: no evil was laid upon the world by God’s hand; neither was his omnipotence limited by any kind of opposing power whatever. When faith speaks of creation, and in doing so directs its eye toward God, then it can only say that God created the world perfect. (Von Rad 1961, p. 59)

Eugene Merrill likewise commented on the moral goodness of creation specifically as it relates to humanity:

The biblical record clearly asserts that man was a perfect being at creation, one of whom the Creator could say that “it was very good” ([Gen. 1:31](http://biblia.com/bible/nkjv/Gen.%201.31)). While this may be taken as an assessment as to the aesthetic value of what God had done, it certainly includes also a moral evaluation of mankind, the only [earthly] creature possessing such a faculty. In fact, that man was the image of God in a pristine world before he sinned presupposes his perfection, for God could hardly have been well represented by a flawed being. (Merrill 2006, pp. 199–200)[8](http://www.answersingenesis.org/articles/arj/v6/n1/goodness-of-creation#fnList_1_8)

To summarize, all three of the aspects of goodness previously mentioned—completeness, purpose, and morality—are wholly consistent with the context of Genesis creation account (as well as other Scriptures) and widely affirmed by qualified biblical scholars; however there is nothing in the context to indicate that God’s pronouncement in [Genesis 1:31](http://biblia.com/bible/nkjv/Genesis%201.31) ought to be construed, as Williams suggested, as necessitating an unrealistic degree of “perfection” in crystals; that is, materials without any irregularity in their crystalline structure. Furthermore, there is no exegetical data to support Morris’s fanciful conjecture about processes operating with 100% efficiency and the possibility of building perpetual motion machines.

All of this goes beyond the bounds of what may be assumed in the statement “very good” as shown by the semantic range of טוֹב and the contextual indicators surrounding the statement. Moreover, since processes requiring the normal operation of the second law of thermodynamics were in place prior to the curse (e.g., [Genesis 2:10](http://biblia.com/bible/nkjv/Genesis%202.10), [15](http://biblia.com/bible/nkjv/Genesis%202.15), [16](http://biblia.com/bible/nkjv/Genesis%202.16), etc.), it is almost surely unwarranted to suppose that the second law was introduced at the time of the curse.

**Solution**

In view of the preceding argument, it may be proposed that the curse in Genesis 3 did not initiate the second law of thermodynamics; rather, it brought about a change related to the effect and eventual results brought about by the second law. Though the second law was operative prior to the curse, it was never permitted by God to result in disease, suffering, death, or extinction.

Stated another way, the curse did not introduce entropy—at least not as currently understood scientifically. Rather, it is what altered the final result of entropy, so that it now eventuates in death. This probably means that the force restraining the second law from resulting in death lies outside of the bounds of the scientific and squarely within the realm of the supernatural, but this is not a problem within the framework of a biblical worldview. That being said, it is not impossible that, prior to the curse, some of the effects of the second law were counteracted in living things by natural repair mechanisms that were removed (or made less efficient) at the pronouncement of the curse. Of course, this would not have mitigated the effects of the second law on the universe as a whole, necessarily; though it might have negated any harmful decay with respect to living creatures. However, there is simply no way of knowing about these things for sure, the pre-Fall world having now been lost to history.

Nevertheless, there are hints in the text, even in the post-Fall world, of occasions whereon the effects of the second law were miraculously restrained. [Deuteronomy 8:4](http://biblia.com/bible/nkjv/Deuteronomy%208.4); [29:5](http://biblia.com/bible/nkjv/Deuteronomy%2029.5); and [Nehemiah 9:21](http://biblia.com/bible/nkjv/Nehemiah%209.21) all refer to Israel’s desert wanderings, during which time, “Their clothes did not wear out and their feet did not swell.” The means by which the second law was counteracted (or, at least, its effects delayed) is not mentioned, but it seems fairly obvious from the biblical text that the second law did not eventuate to the same end that it normally would have.

Perhaps, then, the sustaining power of God mentioned in [Colossians 1:17](http://biblia.com/bible/nkjv/Colossians%201.17) and [Hebrews 1:3](http://biblia.com/bible/nkjv/Hebrews%201.3) was operative in the pre-Fall world in the same exceptional way spoken of in reference to the Israelites in the desert.[9](http://www.answersingenesis.org/articles/arj/v6/n1/goodness-of-creation" \l "fnList_1_9) As Sarfati perceptively notes (2002, pp. 226–227), it is possible “that God withdrew some of His sustaining power . . . at the Fall so that the decay effect of the Second Law was no longer counteracted,” specifically with respect to the allowance for the death of sentient creatures, both man and beast (cf. [Romans 5:12](http://biblia.com/bible/nkjv/Romans%205.12)).

The bottom line is this: There is no biblical warrant for denying the presence of the second law of thermodynamics prior to the curse. At the same time, there must be a clear distinction made between the second law and the full extent of the effects associated with it in the post-Fall world. Stambaugh presents a biblically-balanced conclusion:

[T]here would be entropy in the physical universe during the creation week. But whether human and animal death and disease were a part of this entropy before the Fall, that is, in God’s “very good” creation, is another question. It should be noted that the causes of aging are not well understood. There is neither scientific warrant nor biblical warrant to think that aging, as a decay process, was part of the original creation. So, the second law was certainly functioning before the Fall. But that does not mean that there was decay and physical death among the living creatures . . . before the Fall. (Stambaugh 2008, p. 382)

**Author’s Note**

Be sure to read also the companion paper to this work, “[The Second Law of Thermodynamics and the Curse](http://www.answersingenesis.org/articles/arj/v6/n1/thermodynamics-and-curse)” by Dr. Danny Faulkner (2013).

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**Footnotes**

1. Whitcomb’s remark has remained the same in the third edition of his book, released in 2010. [Back](http://www.answersingenesis.org/articles/arj/v6/n1/goodness-of-creation#fnMark_1_1_1)
2. Cf. Sarfati n.d. and Ross 1994, pp. 65–66. Ross, of course, does not approach the issue with a young-earth creationist perspective. Because he assumes that death preceded the fall, he requires the presence of decay from the beginning of God’s creative work. However, his comment is nonetheless significant: “Without decay, work . . . would be impossible . . . . Without work, physical life would be impossible, for work is essential to breathing, circulating blood, contracting muscles, digesting food—virtually all life sustaining processes.” [Back](http://www.answersingenesis.org/articles/arj/v6/n1/goodness-of-creation#fnMark_1_2_1)
3. For more information, see also Bowling (1980, pp. 345–46), Clines, et al. (1996, pp. 351–358), Gordon (1997, pp. 353–357), Höver-Johag (1986, pp. 296–317), and Stoebe (1997, pp. 486–495). [Back](http://www.answersingenesis.org/articles/arj/v6/n1/goodness-of-creation#fnMark_1_3_1)
4. H. J. Stoebe notes, “The meaning of *ṭôb* as ‘good’ in a religioethical sense is not the result of a late spiritualization. The impetus is given by *ṭôb*’s direct relationship to life. In the background stands the knowledge that life is possible only through the order to which the *ṭôb* declaration simultaneously relates because there is no life outside it.” Also, he writes, “Wisdom too wishes to teach the way of life (cf. [Prov 2:19](http://biblia.com/bible/nkjv/Prov%202.19" \t "_blank); [5:6](http://biblia.com/bible/nkjv/Prov%205.6); [6:23](http://biblia.com/bible/nkjv/Prov%206.23); [12:28](http://biblia.com/bible/nkjv/Prov%2012.28); [15:24](http://biblia.com/bible/nkjv/Prov%2015.24); [16:17](http://biblia.com/bible/nkjv/Prov%2016.17)). It is the ‘way of the good’ ([Prov 2:9](http://biblia.com/bible/nkjv/Prov%202.9" \t "_blank), [20](http://biblia.com/bible/nkjv/Prov%202.20); cf. [2:12](http://biblia.com/bible/nkjv/Prov%202.12) ‘way of the evil’). Wisdom too seeks morality and recognizes the good person ([Prov 2:20](http://biblia.com/bible/nkjv/Prov%202.20" \t "_blank); [12:2](http://biblia.com/bible/nkjv/Prov%2012.2); [13:2](http://biblia.com/bible/nkjv/Prov%2013.2); [14:14](http://biblia.com/bible/nkjv/Prov%2014.14), [19](http://biblia.com/bible/nkjv/Prov%2014.19)). The norms of this way are ‘justice’ and ‘righteousness’ ([Prov 2:9](http://biblia.com/bible/nkjv/Prov%202.9" \t "_blank); cf. [12:28](http://biblia.com/bible/nkjv/Prov%2012.28); [16:31](http://biblia.com/bible/nkjv/Prov%2016.31)), the aids ‘wisdom’ and ‘insight’ ([Job 34:4](http://biblia.com/bible/nkjv/Job%2034.4); [Eccl 7:11](http://biblia.com/bible/nkjv/Eccl%207.11); cf. [Prov 4:7](http://biblia.com/bible/nkjv/Prov%204.7" \t "_blank); [9:6](http://biblia.com/bible/nkjv/Prov%209.6)). Indeed, these contexts do not lack expressions that point beyond actual wisdom thought ([Prov 2:9](http://biblia.com/bible/nkjv/Prov%202.9" \t "_blank); [14:22](http://biblia.com/bible/nkjv/Prov%2014.22); [15:3](http://biblia.com/bible/nkjv/Prov%2015.3)). Consequently, one may not construe an exclusive contrast between piety and wisdom . . . , nor may one see this piety as merely a form of wisdom thought, for it is oriented beyond norms to God himself.” Furthermore, he argues, “This impetus is deepened in the prophetic proclamation (e.g., [1 Sam 15:22](http://biblia.com/bible/nkjv/1%20Sam%2015.22); [Mic 6:8](http://biblia.com/bible/nkjv/Mic%206.8" \t "_blank); [Hos 6:6](http://biblia.com/bible/nkjv/Hos%206.6" \t "_blank)); it can share individual formulations with wisdom. Particularly informative is the proclamation of Amos ([Amos 5:4](http://biblia.com/bible/nkjv/Amos%205.4), [14f](http://biblia.com/bible/nkjv/Amos%205.14f).). The notion of life occupies a decisive position; granting life is a matter for the living God. One can find it in community with him only if one observes his directives. Thus, ‘to seek God’ and ‘to seek good’ become nearly identical concepts” (Stoebe 1997, p. 492). [Back](http://www.answersingenesis.org/articles/arj/v6/n1/goodness-of-creation#fnMark_1_4_1)
5. Note also [Romans 8:20](http://biblia.com/bible/nkjv/Romans%208.20), wherein the world’s subjection to futility suggests that the creation cannot fully achieve the purpose for which it was created. [Back](http://www.answersingenesis.org/articles/arj/v6/n1/goodness-of-creation#fnMark_1_5_1)
6. Gordon Wenham (1987, p. 34) likewise points out, “The harmony and perfection of the completed heavens and earth expresses more adequately the character of their creator than any of the separate components can.” [Back](http://www.answersingenesis.org/articles/arj/v6/n1/goodness-of-creation#fnMark_1_6_1)
7. Derek Kidner (1967, p. 53) fittingly notes, “And if the details of His work were pronounced ‘*good*’ ([vv.] 4, 10, 12, 18, 21, 25), the whole is *very good*. Old and New Testament alike endorse this in their call to a thankful acceptance of all things material (e.g., [Ps. 104:24](http://biblia.com/bible/nkjv/Ps.%20104.24); [1 Tim. 4:3–5](http://biblia.com/bible/nkjv/1%20Tim.%204.3%E2%80%935)) as both from and for God.” John Calvin’s words are also worth consideration: “Therefore, the final judgment of what Moses speaks is like a bridle to hold back men’s foolish curiosity and especially that diabolical audacity which transports them when they want to contemplate God and his works and say, ‘I do not think that is good. I think it would be better done differently.’ But because God found his works good, nothing remains except for us to consider them quite humbly, knowing that he did everything with such wisdom that, if we do not understand it, it is because our senses are dazzled, indeed completely blind. . . . So let us learn not to be judges of God’s works, but to yield to the judgment he has given concerning them, and let us find everything good since he has declared it so, and let us know that to battle against him is like butting our heads against a wall . . . . According as God’s blessing shone upon all things above and below without exception, God’s goodness was visible in all things created” (Calvin 2009, pp. 118–120). [Back](http://www.answersingenesis.org/articles/arj/v6/n1/goodness-of-creation#fnMark_1_7_1)
8. Notably, Sarna also writes, “Following the creation of all living things, we meet with the climatic observation that God saw all that he had made and found it to be ‘very good’” (1:31). . . . The basic belief in the essential goodness of the universe was, of course, destined to exert a powerful influence on the direction of the religion of Israel and to affect the outlook on life of the people. It found its expression in the covenant relationship between God and His people and ultimately achieved its most glorious manifestation in the notion of Messianism— two uniquely Israelite contributions to religion” (Sarna 1966, p. 18). [Back](http://www.answersingenesis.org/articles/arj/v6/n1/goodness-of-creation#fnMark_1_8_1)

1. [Colossians 1:17](http://biblia.com/bible/nkjv/Colossians%201.17" \t "_blank) and [Hebrews 1:3](http://biblia.com/bible/nkjv/Hebrews%201.3) specifically attribute this power to the Son, in whom “all things hold together” and who “upholds all things by the word of his power” (New American Standard Bible). [Back](http://www.answersingenesis.org/articles/arj/v6/n1/goodness-of-creation#fnMark_1_9_1)

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第3周第4部分：

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在创作的善思考：在什么意义上是创造“完美” ？

由李·安德森

2013年11月13日

摘要

在年轻地球创造论运动的初期，一些出版物推动了热力学第二定律被引入作为诅咒而产生的概念。这一观点已被接受，有时盲目所以，某些当代的创造论也是如此。本文综述了早期创世出版物的集合，然后解决它是否是必要的，以查看上帝在创世纪1:31宣告祂的创造是“非常好”为迫使缺乏对熵增加的趋势的问题。它还考虑是否有训诂权证的链接明显创世记3与引进热力学第二定律的诅咒。本文认为，没有真正的圣经的证据表明，第二定律是前诅咒无法操作。它认为不如说第二定律是自创世之初。然而，对熵隐含在第二定律的趋势是从来没有的抵触与上帝的声明，创建了一种“非常好”，或者说eventuated任何有情生物的死亡。

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关键词：诅咒，死亡，腐烂，变质;熵;秋天，莫里斯，亨利，热力学第二定律;惠特科姆，约翰，威廉姆斯，艾美特，年轻地球创造论运动

介绍

热力学第二定律是举世公认的科学原理。它指出，一个封闭的系统内， “能源的每一个自然发生的转型是伴随着某处，在能源的可用性今后的工作性能损失” （林赛1959年，第379页） 。在这里找到了“所有观察到的系统的一般自然倾向去从有序到无序” （林赛1968年，第100页） 。寻址进化论第二定律的后果，创世托马斯·巴恩斯正确地指出：热力学第二定律是“为进程不可逆转的趋势，在一个自包含的系统中去朝低阶” （巴恩斯1966年，第5 ） 。他认为，这必然导致“增加随机性，病症和衰减，如果整个系统考虑。这是说，系统运行下山，不上山，他们不风而上，他们往往跑下来“ （巴恩斯1966年，第5页）。

在现代年轻地球创造论运动开始时，一些重要的早期著作推动了热力学第二定律被引入作为创世纪3诅咒而产生的概念。这可能是不可能说得清这种想法实际上开始，但是，它在创世纪洪水的外观由约翰·惠特科姆和亨利·莫里斯在1961年大概可以标记为最早的时候，它出现在主要出版物有对创世的任何显着的影响运动。惠特科姆和莫里斯表示， “创新。 。 。实际上已经完成了手段创作过程中，这是现在换成了隐含在第二定律的变质过程“ （惠特科姆和Morris 1961 ，页224-225 ） 。他们把原因归结第二定律的侵入，诅咒，最终得到从亚当的罪（参创3:17 ） ，那就是“卖身衰变”来，世界已经“接受”以神为当代（罗马书8:20-22 ） 。

两年后，在Evolution中，莫里斯的暮光寻址第二定律的普遍性辩称， “这是严格意义上的经验定律，这一直被认为是真正的任何地方可以进行测试，但其中有没有已知的自然的解释“ （莫里斯1963年，第37页） 。他继续说， “圣经的解释是，这是因为亚当的罪参与神在这个世界和它的整个系统的诅咒” （莫里斯1963年，第37页） 。对于莫里斯之间的诅咒，也就是直接式， “第二个伟大发现其实地球历史的”和第二定律是显而易见的。他说， “热力学第二定律一直被视为近似诅咒的影响的科学声明” （莫里斯1963年，第58页） 。

末世论的影响，沉重地压在莫里斯的观点。他认为，该声明“非常好”（创世记1:31 ） “是由在新的地球，这一切将会得到上帝创造条件说明澄清后目前这个系统已经去世” （莫里斯1963年，第72页） 。启示录21:4承诺的世界缺乏悲伤，痛苦，哭泣和死亡 - 所有这些都与诅咒是直接相关的就证明了在启示录22:3 ，它说平行声明“不得有更多的诅咒。 ”莫里斯总结说：“圣经教导说，最初，没有障碍，无腐烂，无老化过程，没有痛苦，最重要的是，没有死亡，在世界时创作完成。一切都“非常好” “ （莫里斯1963年，第37页） 。

根据这一推理，莫里斯进一步声称，在天上的状态， “不会有任何证据罪，混乱，衰败和死亡的影响。热力学第二定律将不再控制物理过程“ （莫里斯1963年，第72页） 。

莫里斯的工作后不久，埃美特·威廉姆斯锁存到热力学的诅咒和第二定律之间的连接莫里斯的观点。他的结论是或许比那些莫里斯更极端。他写道， “在创作过程将是当然的正对面，以目前的科学过程的熵原理”，同样， “如果完美圣洁的上帝创造，再创造将是完美的。这里将是完美的自然，完美的宇宙，并以此为固态，完美的晶体“ （威廉姆斯1966年，第23页） 。这是，当然，与今天发现了什么直接对比。威廉姆斯因此认为，这种急剧的变化从有序到无序“必须通过神圣的法令迟于创世记1:31发生。他所有的自然说话应运而生，然后大骂，因为人的罪“ （威廉姆斯1966年，第23页）他的完美的创造。因为它涉及到物理世界，他建议说， “上帝创造的完美有序的晶体材料已经堕落，因为热力学第二定律的运作成原子无序材料” （威廉姆斯1966年，第23页） 。

在扩大后他的观点，但事实上，威廉姆斯不约而同地看到了第二定律的恶化和衰变过程隐含的造成死亡是显而易见的。他写道， “死亡使身体归于尘土，或者换句话说，身体已经接触到其周围环境的平衡。传道书3:20已得到满足;死亡是热力学第二定律的体现“ （威廉姆斯1969年，第144页）。后来，他推测， “热力学第二定律的障碍和死亡的圣经原则的科学声明” （威廉姆斯1969年，第147页） 。威廉姆斯还表示， “莫里斯认为，热力学第二定律起源当上帝诅咒，因为亚当的罪成立。在这一点上死亡进入了物理宇宙。无序和衰变过程开始于所有自然的操作（罗马书8:20 ， 22 ） “ （威廉姆斯1969年，第146页） 。也是如此，在以后的出版，他说，罗马人的8:20和22日，“这基本上是热力学第二定律的圣经报表” （威廉姆斯1970年，第49页） 。

威廉姆斯是不是这个位置的唯一支持者。写于1972年，约翰·惠特科姆的书的早期地球回荡简要阐述创世纪洪水十年前的说法。他描述了人类的现状为一体的“受伊甸园的诅咒”与“困在热力学第一和第二定律的铁钳， ”这样说：“我们真的不能想象一个真正的创造的东西，或突然重新编程有生命的东西，以“腐败的捆绑' ” （惠特科姆1972年，第136页）1。

这一点，连热力学第二定律的诅咒参数已经出现在专业创造论的出版物。然而，在1976年，有人在推进莫里斯的创世纪纪录，成为中保守的福音派基督徒流行的解说。在谈到创世纪3:17-19 ，莫里斯写道：

这是普遍的经验，所有的事情，生活或无生命，最终穿出来，跑下来，白头到老，腐烂，并通过进灰尘。这种情况是如此普遍，它被正式大约一百年前（由卡诺，克劳修斯，开尔文，和其他科学家）到一个基本的科学规律，现在被称为热力学第二定律。 （莫里斯1976年，第126-127页）

他进一步指出，​​创建帐户和目前世界之间的明显的反差“，而不是所有的事情都是' made' ，也就是说，组织成复杂的系统，因为他们在创造周，他们现在正在'作废了， ”成为杂乱无章，简单。相反的生活和成长，都会有腐烂和死亡“ （莫里斯1976年，第127页） 。他总结说， “那么，这是混乱和衰退的法系怪的真正起源，普遍适用的，热力学的所有重要的第二定律。 。 。 。 。人是个罪人，并带来了上帝的诅咒在地上“ （莫里斯1976年，第127页，加上强调） 。

即热力学第二定律开始与诅咒的概念有关于自然秩序的主要后果。也许是认识到了一些他的位置的困难，莫里斯后来修改了他的看法有点。 1981年，他写道：

在原始的创造，但是，即使我们可以称之为肯定存在“衰变”过程（例如，消化，摩擦，水的侵蚀，波的衰减等） ，它们必须都平衡恰恰与“保增长”工序外移无论是在单个系统或者更常见的是，在相邻的系统，从而使世界作为一个整体的熵将保持不变。 。 。 。每一个过程和机器将有100 ％的效率，与所有的输入能量被转化完全转化为有用功。即使在过程迫使摩擦力为他们的操作中使用的热能将完全生产，没有能量被“丢失”没有地方会穿出来，没有生物会“时代”过去最大的活力和生产力的角度来看，和每个人都可以轻松地设计和构建永动机！以上是明显的想象力，而且毫无疑问，不精确和不完整的，但它可能不会太遥远。一切的设计是由一个无所不知，无所不能的上帝是“非常好”。 （莫里斯1981年，第129页）

然而莫里斯坚持认为， “出现了大幅修订，第二定律。 ”鉴于动物和人类的死亡在堕落之前已不存在， “现在一切都在进行回尘土，根据热力学第二定律热力学。 “他辩称， ”第二定律在其后期秋季形式正式公布在创世纪3:17-20 “ （莫里斯1981年，第129页）中找到。因此莫里斯推测， “扩展形式相同的所有的人的统治的诅咒。男子带来的精神障碍到自己的统治，神施加适当的物理障碍的一个原则上的统治适合它作为精神状况“ （莫里斯1981年，第130页） 。

这是值得商榷的这一澄清是否帮助了，因为它随意堕落后的秋季，其工作之前区别热力学第二定律的工作。它使合格第二定律的操作，它并不会发出声音什么都像第二定律今天是活跃在世界的堕落之前。如果有的话，莫里斯的修改位置更多的是天马行空的猜想不是一个理论（参见福克纳2013年，第401页） 。莫里斯总结说：“因此，最好我们能理解这两个圣经和科学，我们必须迄今为止建立热力学第二定律，在其至少目前的形式，从悲惨的日子，亚当犯了罪” （莫里斯1981年，第130页） 。

多少阻力有这种观点在最初的几十年里现代创论运动将是无可估量的。不幸的是，很少在热力学第二定律与诅咒之间的等式科学或神学批判的方式是有史以来出版的创世文献。持反对意见的立场是，直到最近，也许是最好的托马斯·巴恩斯表示： “热力学第二定律开始全面清盘系统与居住到期的存在之后” （巴恩斯1966年，第7页） 。这个声明，强烈暗示巴恩斯认为第二定律开始堕落之前。

最近，其他创造论者反对热力学第二定律与诅咒之间的方程，但是，再一次，几乎没有文章，详细讨论这个问题比乔纳森SARFATI （ 2002）的简短发言等。他指出，第二定律和与之配套的趋势走向无序并不总是有害的。他的名字几个例子，这种情况下： （ 1 ）消化，也就是说，断裂复杂的食物分子分解成它们的简单积木; （ 2 ）摩擦，果然下令机械能转化为无序的热量; （ 3 ）热传（例如，来自太阳到地球）和（4）式呼吸，即气体的流动从高压到低压。据创世纪1和2 ，所有这些过程都是预先秋季世界的一部分。 SARFATI总结说：“在世界上所有人都有益的过程。 。 。增加了宇宙的整体混乱，因为周围环境的紊乱增幅超过该系统的减少，显示出第二定律本身不是一个诅咒“ （2002 SARFATI ，第216页） .2

由于SARFATI解释说，有科学问题与热力学第二定律并没有之前诅咒存在的概念。这个问题要问，但是，是圣经的文本是否实际上使得关于创世纪3章的事件之前，第二定律的存在或不存在任何索赔。具体来说， （1）款中“非常好”创世纪1:31宣判指出，由于有些人会声称，第二定律是不可操作？ （ 2 ）是否“非常好”等同于完美的假定类型所要求的第二定律，将排除能量的转移？此外， （ 3 ）如果文字不排除第二定律的存在之前的诅咒，需要它假定第二定律的影响总是导致身体腐烂，不健康的恶化，最终死亡？本文的以下部分将探讨涉及在回答这些问题的因素。

评价

就认为热力学第二定律开始与诅咒的历史评价，可以看出，问题的症结在周围创世记1:31宣判旋转，所有的“非常好”。假设该宣言等同于完全没有任何一种向着熵倾向的，或者，最起码，所有的这种倾向被中和的方式，以保持绝对的效率，但是，这真的是什么意思？

“善”，是由希伯来代表在创世记1:31 טוֹב的概念，是由克勒和鲍姆加特纳（ 2001年，第370-71 ）概述.3其语义范围包括：（ 1 ）旋转木马（以斯帖记5:9 ;箴言15:15 ） ， （ 2 ）愉快，可取的（创世纪2:9 ; 3:6 ; 49:15 ） （ 3 ）按顺序使用（创41:35 ;列王纪下3:19 ， 25 ） ; （ 4 ）定性良好，有效率（撒母耳记下17:7 ;招聘10:3 ） ， （ 5 ）赏心悦目，美丽的（创26:7 ;出埃及记2:2 ） ， （ 6 ）友好，善良（创31:24 ， 29 ;历代志下10:7 ） ， （ 7）良好的品格和价值（创2:12 ，出埃及记3:8 ，传道书7:1 ）和（ 8 ）道德好（何西阿书8:3 ，弥迦书6:8 ） .4

显然， טוֹב有一个广阔的语义范围，表现“善”的有关实用，审美观念，以及道德的。罗伯特戈登正确地总结：

在一般使用“好”代表一个国家或功能适当的流派，目的或情况。因此，在伊甸园中树上的果子被描述为“好作食物” （创2:9 ; cf.3 ： 6 ） ，和玉米在法老的梦开始的耳朵是“好” （创41:5 ， 22 ， 24 ， 26 ） 。说出的话适当的情况或需要也同样描述（箴15:23 ;也许比照撒上9:10 ） ，亚希多弗的有关押沙龙的作战计划的建议的发音是“好”，即使在事件它并没有跟随，因为“耶和华所确定的阻挠亚希多弗的好建议，为用户带来的灾难与押沙龙” （撒下17:14 ） 。 （1997戈登，第353页）

安德鲁保龄球，虽然他的安排之类的意思略有不同做克勒和鲍姆加特纳，使得一个关键点，并指出，这些意义不是相互排斥;它们之间流动和重叠。他写道：

某些用法混合两个以上讨论的含义或更多。 “好地”旧约包括实用，经济，美观的泛音（申1:25 ;约什 - 23:13 ） 。同样，神的观念是“好”是丰富的术语“好”的一切可能的含义的色彩（ 1 CHR 16:34 ;诗145:9 ） 。 （保龄球1980年，第346页）

的关键问题，然而，鉴于创世纪1-2的直接背景的，有什么可说的的“非常好”创世纪1:31的意义有多大？完整性，目的和道德：创造了公判大会在创世纪1:31所指示的善良是相对于善良的三个方面，每一个都可以被周围环境和其它经文来验证普遍认为。创世纪1:31因此宣布建立完整的，缺少什么就什么上帝为了创造（参创2:1-3） 。此外，它宣称，创造符合其目的，实现了对上帝设计了它（参罗11:36 ;歌罗西书1:16 ） .5此外，特别是当光在创世记3蒸发的事件的理解，表明建立在道德上是好的，没有罪恶的腐败。

对于创作的完整性，翁贝托卡苏托评论：

〔N ]嗷嗷神看着一切，他做了，创造的全局，并且他认为，不仅是细节，将它们分开，善良，但每一个协调一致的，其余的，因此整个不只是好，但很不错。打个比方可能会在一个艺术家谁，已经完成了他的杰作，退后了一点，调查了他的手艺与喜悦，对于无论是在细节和整体，它已成为完美的从他手中被发现。 （卡苏托1961年，第59页）

肯尼思·马修斯也同样指出，完整性的重要性：

[神]最高赞誉是隐瞒，直到完成创作，因为只有六个创作天后已经毫无生气地被完全改变了（ 1:2 ） 。现在，地球作为上帝的“勇气”号和动画字的结果是有序的，完整的，并且下手表照顾皇家人类的生命形式丰富。 （1996马修斯，第175页）

詹姆斯·狄克逊，虽然写有一个更虔诚的味道，说类似：

的1:31的“非常好”的语句显示完整。创建每个实体是好的，但是当它被认为是在补充创作的其他部分，这是非常不错的。每个部分都有独立的直接创造神，但它需要创造的剩余部分履行了自己预期的目的。 （二零零五年狄克逊，第44页） 6

狄克逊的话也暗示了创作的善良的上帝的宣判带出的第二个方面，就是它的完成神的旨意为它的能力。他进一步指出：

上帝说， “这就是我打算这是”创造一切有能力履行其预期目的的。创造不是“好”在这个意义上，善良是固有的创作。固有的善良只能属于上帝。在创作“善”是从履行上帝的预期目的为它衍生出来的。当神完成他的创作，一切都在发生着上帝的旨意圆满完成。 （二零零五年狄克逊，第44页） 7

创作对于上帝的宗旨，为它履行的善良是在一段期间内由弗朗西斯·谢弗讨论的一个观点：

[V] ERSE 31总结了整个神的审判。 。 。 。这不是一个相对的判断，但谁拥有一个字符，其特征是宇宙的法神的神圣判决。他的结论是：每一步和创造的每一个领域，而整个事情放在一起，他本人和他的整体环境中，天地 - 的符合自己。在每个各级建立的一切履行其创造的目的。 。 。 。因此，我们发现一个颂歌在所有的创作，一切荣耀上帝对自己的水平。 。 。 。每一件事情矗立在适当的关系，以上帝和说神是什么。并且因为每个东西是正常的神是什么（神在那里作为创造者），而且每一个都完美地对它所作出的级别运作的总背景下，所有的事情都完成了自己的水平，机内，在动物和人本身。 （谢弗1972年，第55-56页）

CF的Keil ，虽然简短，阐明本质上是相同的事情：

上帝看到他的工作，谁知这一切都是非常不错的，也就是说，一切都完美的同类，让每一个生物可能会达到造物主指定的目标，并实现其存在的目的。术语“好”的一切，上帝造的，字的重复中的应用“非常”，在结束整个创造的，任何事情邪在神创造万物的存在是绝对的否定，并假设完全驳斥了六天的工作仅仅是征服和束缚的恶人，邪恶的原则，这已经强行进入它。 （KEIL 2011 ，第41-42页）

值得注意的是，KEIL断言宣判， “非常好，”是，除了所有其他的事情，它表明，一个道德评价。格哈德·冯拉德也是对他的观察：

此语句[ “非常好”] ，表达和写在一个充满了无数烦恼的世界，保留信仰不可分割的担忧：没有邪恶奠定了对世界的上帝的手，也不是他的全能受任何反对力量无论。当谈到信仰的创造，并在这样做指示，它的眼睛对神的话，就只能说是上帝创造了世界完美。 （冯拉德1961年，第59页）

尤金美林也谈到创作特别，因为它涉及到人类的道德上的善：

圣经的记载清楚地断言，人是一个完美的存在在创作，其中一人的创造者可能会说， “这是非常好的”（创1:31 ） 。虽然这可能被视为一个评估，以神所行的审美价值，这当然也包括人类的道德评价，唯一的[尘世]生物拥有这样的教师。事实上，这人真是神的形象质朴的世界之前，他犯了罪的前提他的完美，因为上帝可能很难得到了很好的一个有缺陷的存在表示。 （ 2006年美林，页199-200 ） 8

总之，所有这三个善良的方面前面提到的完全性，目的和道德，是与创世记的创造帐户的上下文（以及其他经文）完全一致，并且由有资格的圣经学者广泛的肯定，但有没有在的背景下，以表明上帝在创世纪1:31宣告应该被理解，因为威廉姆斯建议，作为迫使晶体中“完美”的不切实际的程度，也就是说，没有材料在其晶体结构中的任何不规则性。此外，没有训诂数据支持莫里斯的约100 ％的效率，构建永动机的可能性操作流程天马行空的猜想。

所有这一切都超越了什么可以假定在声明中“非常好”所表现出的语义范围טוֹב和周围的声明上下文指标的界限。此外，由于需要热力学第二定律的正常运行过程之前的诅咒（例如，创世记2:10 ， 15 ， 16等）已经到位，这几乎是肯定无端的假设，第二定律被引入在诅咒之时。

解

鉴于前面的说法，它可能会提出，在创世纪3诅咒并没有主动热力学第二定律，相反，它带来了与由第二定律带来的效果和最终结果的变化。虽然第二定律是之前的诅咒术，它从来没有得到上帝允许导致疾病，痛苦，死亡或灭绝。

换句话说，诅咒没有引入熵至少不会像现在科学的理解。相反，它是什么改变熵的最终结果，因此现在eventuates死亡。这可能意味着该部队从导致死亡抑制第二定律就在于科学和正视内的超自然的境界的范围之外，但是这不是圣经的世界观框架内的一个问题。话虽这么说，也不是没有可能的，之前的诅咒，一些第二定律的影响被移除的（或制造效率较低）在诅咒宣判天然修复机制在抵消生活的东西。当然，这不会减轻第二定律对宇宙作为一个整体，一定的影响，虽然它可能已经否定任何对人体有害的衰减就众生。然而，根本就没有办法知道这些事情肯定的，堕落前的世界已现在已经消失在历史中。

不过，也有场合耸立奇迹般地抑制第二定律的影响在文中暗示，即使是在堕落后的世界， 。申命记8:4 ， 29:5 ，和尼希米记9:21都是指以色列的沙漠中流浪，在此期间，由第二定律被抵消的方式（ “他们的衣服没有穿破，脚也没有肿。 ”或者，至少，它的效果延迟）没有提到，但它似乎相当明显，从圣经的文本，第二定律没有结果到同一个终点，它通常会。

也许，那时，上帝的底气在歌罗西书1:17和希伯来书1:3提到的是在手术前的堕落世界中提到以色列人在desert.9作为SARFATI所说的一样特殊的方式敏锐地指出（ 2002年，页226-227 ） ，它是可能的“ ，上帝收回了部分他底气的。 。 。在秋天，这样第二定律的衰减效应不再抵消， “特别是关于津贴的有情众生的死亡，无论是人是牲畜（参见罗马书5:12 ） 。

底线是这样的：有没有圣经权证否认之前诅咒热力学第二定律的存在。与此同时，必须有第二定律，并用它在后堕落的世界相关的影响的充分的程度之间做了明确的区分。斯坦博提出了一个圣经平衡的结论：

[ T]这是在创造周熵的物理宇宙。但是，人类和动物的死亡和疾病是否是这个熵的一部分，在堕落之前，也就是在神的“非常好”的创作，是另外一个问题。但应注意的是，老化的原因还不是很清楚。这里既不科学，也不认股权证认股权证圣经认为老龄化，作为一个衰减的过程，是独创的一部分。因此，第二定律是肯定的堕落之前运作。但是，这并不意味着有活物中的衰减和肉体的死亡。 。 。之前的秋天。 （2008年斯坦博，第382页）

作者注

此外，请务必阅读配套文件对这项工作， “热力学第二定律与诅咒”由丹尼·福克纳博士（ 2013 ） 。

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脚注

1 。后面

2 。 。 。 。 。 。

3 。后面

4 。 。 。后面

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Week 3: Part 5

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**The Second Law of Thermodynamics and the Curse**

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**Abstract**

Many recent creationists believe that the second law of thermodynamics came into being as a result of the Fall or the curse. I argue that this is not supported by Scripture, nor is it a defensible position from a scientific viewpoint. Instituting the second law of thermodynamics at the Fall needlessly causes problems for theology and science. Rather, I propose that the second law of thermodynamics came into the picture during the Creation Week as part of the created order ([Nehemiah 9:6](http://biblia.com/bible/nkjv/Nehemiah%209.6); [Colossians 1:16](http://biblia.com/bible/nkjv/Colossians%201.16)).

**Keywords**: Fall, second law of thermodynamics, entropy.

**Introduction to Laws of Thermodynamics**

Thermodynamics is concerned with systems that utilize energy, work, and heat, as well as their respective relationships. Physicists define three types of thermodynamic systems: isolated, closed, and open. An isolated system exchanges neither matter nor energy with its surroundings. A truly isolated system does not exist as a subset of the universe, but we can approximate an isolated system very closely. A closed system can exchange energy but not matter with its surroundings. An open system may exchange both matter and energy with its surroundings. There are four laws of thermodynamics, called the zeroth (0th) law, first (1st) law, second (2nd) law (sometimes denoted as the “law of entropy”), and third (3rd) law. Each law is briefly defined below:

Zeroth: If system A is in thermal equilibrium with system B, and system B is in thermal equilibrium with system C, then systems A and C are in thermal equilibrium.

First: Energy can neither be created nor destroyed.

Second: The entropy change of an isolated system can never be negative.[1](http://www.answersingenesis.org/articles/arj/v6/n1/thermodynamics-and-curse#fnList_1_1)

Third: The entropy of a perfect crystal at absolute zero temperature is equal to zero.

It may seem strange that there is a zeroth law, but that law was formulated after some of the other laws were developed. After some of the other laws were recognized, physicists realized that that the principle of the zeroth law was more basic than the others, and so they inserted it before the others. The first law is the familiar conservation of energy principle. Since the discovery in the early twentieth century that mass and energy are equivalent, the first law has been generalized to allow for the conservation of mass-energy, but only in situations where mass-energy conversion is relevant. Unlike the straightforward statements of the zeroth and first laws of thermodynamics, there are many different statements and formulations of the second and third laws.

All such laws work well within a biblical framework, but the second law seems to stand out among recent creationists. For example, in the universe (seen as an isolated system), where did order come from in the first place, if not from God? On the other hand, atheistic believers in the big bang must posit that the universe came into existence in a very low-entropy state. But its appeal and discussion has led some creationists to propose the idea that the second law was not part of the original created order, but instead was enacted at the fall of mankind. A deeper discussion needs to be given to this issue.

**Introduction to Creationist Views of the Second Law**

It is a common belief among recent creationists that the second law of thermodynamics came into existence at the time of the curse. That is, one can equate the second law of thermodynamics with the curse. This idea appears to have originated with Henry M. Morris[2](http://www.answersingenesis.org/articles/arj/v6/n1/thermodynamics-and-curse#fnList_1_2)where he stated,

Creation (or what biologists imply by “evolution”) actually has been accomplished by means of creative processes, which are now replaced by the deteriorative processes implicit in the second law. The latter are probably a part of the “curse” placed upon the earth as a result of the entrance of sin ([Genesis 3:17](http://biblia.com/bible/nkjv/Genesis%203.17)), the “bondage of decay” to which it has been “subjected” by God for the present age ([Romans 8:20–22](http://biblia.com/bible/nkjv/Romans%208.20%E2%80%9322)). (Whitcomb and Morris 1961, pp. 224–225)

Two years later Morris expanded his thoughts. He stated,

The universal validity of the second law of thermodynamics is demonstrated, but no one knows why it is true. It is strictly an empirical law, which has always been found to be true wherever it could be tested, but for which there is no known natural explanation. But the biblical explanation is that it is involved in the curse of God upon this world and its whole system, because of Adam’s sin . . . Therefore, we conclude that the Bible teaches that, originally, there was no disorder, no decay, no aging process, no suffering, and above all, no death, in the world when the creation was completed. All was “very good.” (Morris 1963, p. 37)

He continues:

The second great revealed fact of earth history is that of the fall of man, followed by God’s divine curse on the whole creation. The effects of the curse, manifested particularly in the universal tendency toward decay and disorder and death in the world, have been discussed somewhat already. The second law of thermodynamics has been seen to approximate a scientific statement of the effects of the curse. (Morris 1963, p. 58)

Elsewhere Morris reiterated this position with:

This, then, is the true origin of the strange law of disorder and decay, the universally applicable, all-important Second Law of Thermodynamics. Herein is the secret of all that’s wrong with the world. Man is a sinner and has brought God’s curse on the earth. (Morris 1976, p. 127)

Barnes apparently disagreed with Morris’s opinion, for he wrote,

The Second Law of Thermodynamics began after the existence of a fully wound-up system with Living Maturity. (Barnes 1966, p. 7)

In context, Barnes thought that the second law of thermodynamics was in effect by the end of the Creation Week. However, this appears to have been a minority view for some time among recent creationists. Williams elaborated on what Morris had written:

Dr. H. M. Morris has suggested that the principle entropy increase is a direct result of the curse God placed on the creation as a result of Adam’s sin ([Genesis 3:17–19](http://biblia.com/bible/nkjv/Genesis%203.17%E2%80%9319)). The creation process would be of course directly opposite to the entropy principle of present scientific processes. In looking over His newly-finished creation the Lord saw that it was very good ([Genesis 1:31](http://biblia.com/bible/nkjv/Genesis%201.31)).

If the perfect holy God created; then the creation would be perfect. Here would be perfection in nature, perfection in the universe, and as for the solid state, perfect crystals. However, today we find very little, if any, perfection in nature, and this change from order to disorder must have occurred by divine edict later than [Genesis 1:31](http://biblia.com/bible/nkjv/Genesis%201.31). He spoke all nature into being, and then cursed His perfect creation because of man’s sin. Thus the perfectly ordered crystalline materials that God created have degenerated into atomically disordered materials because of the operation of the second law of thermodynamics. The crystalline lattices in solids no longer exhibit order but are filled with defects that interrupt order and cause disorder. (Williams 1966, p. 23)

Three years later Williams returned to this theme, writing,

Morris suggests that the second law of thermodynamics originated when God cursed the creation because of Adam’s sin. At that point death entered the physical universe. Disordering and decay processes began in all natural operations ([Romans 8:20](http://biblia.com/bible/nkjv/Romans%208.20), [22](http://biblia.com/bible/nkjv/Romans%208.22)). (Williams 1969, p. 146)

And in his conclusion Williams explicitly stated,

The universal trend toward disorder and decay was invoked when God cursed the creation because of Adam’s sin. (Williams 1969, p. 146)

The following year Williams, quoting from [Romans 8](http://biblia.com/bible/nkjv/Romans%208), wrote,

For the whole creation was made subject to vanity . . . ([Romans 8:20](http://biblia.com/bible/nkjv/Romans%208.20)). For we know that the whole creation groaneth and travaileth in pain together until now ([Romans 8:22](http://biblia.com/bible/nkjv/Romans%208.22)). These are essentially scriptural statements of the second law of thermodynamics. Thus it is obvious that the universe is subject to the second law. (Williams 1970, p. 49)

While this last statement doesn’t explicitly endorse equating the Fall with entropy, in the context of his previous writings, it is clear that Williams continued to equate the curse with invocation of the second law of thermodynamics. It appears that while Morris may have conceived the idea that the second law of thermodynamics went into effect at the time of the Fall or the curse, Williams may be more responsible for developing and then disseminating that view among creationists.

During this time, there were some creationists who objected to the equation of the second law of thermodynamics with the curse, though nothing seems to have been committed to print. Some of these objections probably had an effect on Morris, because he later softened or modified his position a bit, for he wrote,

In the primeval creation, however, even though what we might call “decay” processes certainly existed (e.g. digestion, friction, water erosion, wave attenuation, etc.), they must all have balanced precisely with “growth” processes elsewhere either within the individual system or, perhaps more commonly, in an adjacent system, so that the entropy of the world as a whole would stay constant. The entropy of the universe now is increasing, but ideally it should be conserved along with energy. Every process and machine would then have 100% efficiency, with all input energies being converted completely into useful work. Even the heat energy employed in the processes necessitating the force of friction for their operation would be completely productive, with no energy being “lost.” No parts would wear out, no organism would “age” past the point of maximum vigor and productivity, and everyone could easily design and build perpetual motion machines! The above is obviously imaginative, and no doubt imprecise, and incomplete, but it could not be too far off. Everything was designed by an omniscient, omnipotent God to be “very good.” The first law would have stated, as at present, the conservation of mass/energy in all systems, and the second law the conservation of entropy in all systems. But there has been a drastic amendment to the second law! No death of sentient life, either animal or human, was intended in God’s original creation . . . But now everything is proceeding back again to the dust, according to the second law of thermodynamics. “For we know that the whole creation groaneth and travaileth in pain together until now” ([Romans 8:22](http://biblia.com/bible/nkjv/Romans%208.22)) . . . . The formal announcement of the second law in its post-Fall form is found in [Genesis 3:17–20](http://biblia.com/bible/nkjv/Genesis%203.17%E2%80%9320): “Cursed is the ground for thy sake: in sorrow shalt thou eat of it all the days of thy life; thorns also and thistles shall it bring to thee, and thou shalt eat the herb of the field; In the sweat of thy face shalt thou eat bread, till thou return unto the ground; for out of it wast thou taken; for dust thou art, and unto dust shalt thou return.” The curse extended in like form to all of man’s dominion. Man had brought spiritual disorder unto his own dominion; God appropriately imposed a principle of physical disorder on that dominion as befitting its spiritual condition. (Morris 1981, p. 120)

Here Morris appears to begrudgingly allow for the second law of thermodynamics in the original creation, but he speculated that its full affects were ameliorated by some other, unspecified sustaining process that was removed at the Fall. Later Morris (1984, pp. 195–196; 2002, pp. 180–181) repeated this last statement word-for-word, indicating that he did not modify his view further. The things that Morris mentioned here, digestion, friction (required for walking), water erosion, and wave attenuation, are examples of dissipative processes, and hence are manifestations of the second law of thermodynamics. Some of these actions are mentioned or implied in the pre-Fall creation. Digestion would follow from the statements concerning eating food ([Genesis 1:29–30](http://biblia.com/bible/nkjv/Genesis%201.29%E2%80%9330); [2:9](http://biblia.com/bible/nkjv/Genesis%202.9), [16–17](http://biblia.com/bible/nkjv/Genesis%202.16%E2%80%9317)). Walking is implied by the job of tending to the Garden ([Genesis 2:15](http://biblia.com/bible/nkjv/Genesis%202.15)) and by the bringing of animals to Adam ([Genesis 2:19](http://biblia.com/bible/nkjv/Genesis%202.19)). Erosion is implied by the river in the Garden that split into four ([Genesis 2:10–14](http://biblia.com/bible/nkjv/Genesis%202.10%E2%80%9314)). Critics of Morris’s position apparently had made him aware of these considerations, but rather than abandon his thesis about the second law of the thermodynamics, he chose to modify it with conjecture and some fanciful musings (for example, perpetual motion machines).

This position has taken root among many recent creationists. For instance, Stambaugh has written,

There is neither scientific warrant nor biblical warrant to think that aging, as a decay process, was part of the original creation. So, the second law was certainly functioning before the Fall. But that does not mean there was decay and physical death among the living creatures (man or sea and land animals, and birds—the *nephesh chayyah*) before the Fall. (Stambaugh 2008, p. 382)

While in his brief discussion Stambaugh does not invoke the loss of some sustaining law at the Fall, he does imply that possibility, but, more importantly, he separates death and decay of living things as simply the result of the second law of thermodynamics. Wise more explicitly agreed with Morris’s later view:

So it appears that what caused the large-scale effects of the curse was not the introduction of a new law (the Second Law of Thermodynamics) but the suspension of some other law. It is interesting that something designed for good (the Second Law) in the original creation could—with as “small” a change as the suspension of another law—cause what is generally perceived as huge negative effects. This is consistent with the idea that the original creation was created by God in such a way that it could exist (at least temporarily) in a fallen state. (Wise 2002, p. 160)

With the admission that manifestations of the second law must have existed prior to the Fall, one ought to question the initial conjecture, that the second law of thermodynamics is to be equated with the Fall. This is particularly important once one separates death from the second law as Stambaugh did. Unfortunately, the most common response is to retain the original conjecture in essence by hypothesizing an additional conjecture about some other law that originally canceled more onerous implications of the second law but ceased to exist at the Fall. In discussion with other creation scientists, it is clear that many of them reject Morris’s position, subscribing instead to a position closer to that taken by Barnes. That is, the second law of thermodynamics was in force at least by the end of the Creation Week. It is a bit odd that few of these people have committed their opinion to print.[3](http://www.answersingenesis.org/articles/arj/v6/n1/thermodynamics-and-curse#fnList_1_3) In this paper, I attempt to address this deficiency.

**Does “Very Good” Equate with Perfection?**

There are several issues that we must tackle. First, many have concluded from the fact that God is perfect that His creation must also be perfect. This is more of an assertion rather than a conclusion. Those who argue thus use a few biblical passages to make their case. One is [Deuteronomy 32:4](http://biblia.com/bible/nkjv/Deuteronomy%2032.4), which states that “. . . His (God’s) work is perfect . . . .,” inferring that the work intended here is the creation. But is it? And does the use here imply perfection as some people take the meaning of the word? In context, this psalm of Moses in [Deuteronomy 32](http://biblia.com/bible/nkjv/Deuteronomy%2032) is about the rebelliousness of the people of Israel. Verse 6 explicitly states that God made Israel, so obviously this work of God is far from perfect, if this is the intended meaning.

However, the key passage probably is the “very good” of [Genesis 1:31](http://biblia.com/bible/nkjv/Genesis%201.31) that some take to mean “perfect,” but is this supported by the Hebrew words here? Prior to verse 31 the Hebrew word for “good” is used in the positive sense six times to describe various parts of creation (light, division of land and sea, plants, astronomical bodies, fish and fowl, land animals). Interestingly, this description appears twice in the Day Three account, but not at all in the Day Two account.[4](http://www.answersingenesis.org/articles/arj/v6/n1/thermodynamics-and-curse#fnList_1_4)

Furthermore, in the creation account this word is used once in the negative sense, in [Genesis 2:18](http://biblia.com/bible/nkjv/Genesis%202.18) when God stated that it wasn’t good that man was alone. What is the good that is referred to in these usages? There are at least two possible meanings of the Hebrew word for “good” here, and they reflect two of our meanings of the word “good” in English, so this is a good translation. One possible meaning refers to morality. Since sin and the taint and consequences of sin had not yet entered the world, this would be appropriate. However, the word also can convey the meaning of completeness or purpose. Certainly, that is the intended meaning in [Genesis 2:18](http://biblia.com/bible/nkjv/Genesis%202.18) in that Adam was incomplete without Eve.

Each of the six uses of just the word “good” in the first chapter of Genesis probably refers to the completeness of what God had made, because He had accomplished what He had intended for each of His creative acts. Since they were complete, they also fulfilled their intended purposes. At the end of the Creation Week, it was appropriate that God then pronounced all “very good,” for He had finished what He had set out to do. That is, each of God’s creative acts were good when finished as far as they went, but it wasn’t until all were finished was it best to sum up with the pronouncement of “very good.” See the more complete companion paper by Anderson (2013) on this topic.

Still, can we equate this “very good” with perfection? Since the taint of sin had not yet entered the world, certainly. But then there is a problem with equivocation, for we often use the word “perfect” in several distinct ways. To be morally perfect means to be without sin. We also describe something as perfect if it is without blemish or fault. But a blemish or fault doesn’t have to have a moral component. For instance, a perfect attendance record means that one has not missed a meeting, but there is nothing immoral about missing a meeting for illness or bereavement. A perfect test paper has no wrong answers, but there is nothing immoral about not knowing the correct answer to a question. A perfect solution to a problem solves the problem without introducing new problems. In the physical realm, we frequently speak of faults or defects, even though there is no moral component involved. In offering a Passover sacrifice, the lamb had to be spotless (perfect), but that did not preclude any genetic defects being present. Indeed, we understand today that all lambs carry a few genetic mutations, but that those mutations do not manifest themselves in a “perfect” lamb. Most solids consist of a crystalline array of particles, the particles being atoms, ions, or molecules. A crystal normally has an alternating pattern of particles, so that once one knows the pattern, one can predict the location and identity of a particular particle anywhere in the crystal. But all crystals have deviations from the pattern. These deviations are defects in the sense that they fall short of the simple ideal of the pattern. There is absolutely no sin or immorality involved, yet Williams (1966) argued that such a situation violated the perfection of the initial creation and hence concluded that all crystals originally were perfect (had no defects). Again, this is equivocation, for the word perfect is used in two different senses.

To illustrate the absurdity of this position, consider diamond, which is a crystal. Diamond has a high index of refraction, so light is bent and dispersed within a diamond. This is what gives a diamond its rich and vibrant color. Many facets greatly increase this illusion, and hence many facets improve the appearance of a diamond. On the other hand, the presence of defects in the crystal can interfere with passage of light in the diamond and hence detract from the appearance. Thus, the number of defects in a diamond largely determines the value of the stone—the fewer defects that diamond has for a given size, the more attractive, and hence more valuable, the diamond will be.

To improve the appearance, diamond cutters shape stones to maximize the number of facets. Diamond is essentially the hardest substance, and so we cannot easily cut diamonds with saws. Rather, diamond cutters frequently take advantage of naturally occurring weaknesses between planes in the crystal to cleave, or break, diamonds to produce these facets. However, these weaknesses between planes are deviations from the ideal crystal and hence amount to defects in the crystal. That is, a “perfect” diamond (one with no flaws) could not be cut. We could not improve upon its appearance, so unless this “perfect” diamond already has a large number of facets, it would not be as pretty as possible. This introduces a catch-22: this “perfect” diamond would not be as pretty as it could be, thus it isn’t perfect. Even here, I have equivocated with the word “perfect,” for I’ve used the word to refer to a diamond with no defects and to refer to a diamond with exquisite appearance. Of course, one could argue that if diamonds existed in the original creation that all of them had the maximum number of facets and no defects. This is not how we find diamonds today, so this amounts to a new assertion, and results in piling conjecture upon conjecture to salvage a teaching that is not required by biblical texts.

**Entropy**

The second law of thermodynamics probably is one of the slipperiest things in science. One reason for this is that the second law has many manifestations and hence many different statements. I will not even attempt to describe the second law in great detail. In its most basic form, the second law describes the direction in which heat flows spontaneously, from hotter to cooler regions. To express this, we define a quantity called entropy. Entropy is the ratio of heat flow to temperature, so entropy has the units of heat flow divided by temperature. In physics, the standard unit of heat is the Joule, while the standard unit of temperature is Kelvin, so the standard unit of entropy is Joule/Kelvin, abbreviated J/K. Consider two objects, one hotter and one cooler. If we place the two objects next to one another so that heat can flow between them (we say that they are in thermal contact), we will find that heat will flow from the hotter to the cooler object until their temperatures equalize (when we say that they’ve reached thermal equilibrium). To compute the entropy change of either object, we merely divide the heat flow of either object by its temperature. The temperature changes continuously during the heat flow, so this is not a simple calculation, but we can carefully consider the situation to reach some broad conclusions. Since the hotter object loses heat, its heat flow will be negative. But the heat flow of the cooler object will be positive, because it gains heat. If the only heat flow involved is between the two objects, then the total heat flow will be zero, because the gain of one is at the expense of the other. If this criterion is met, then we say that the system (the two objects together) is thermally isolated. This insures that the heat flows of the two objects are equal and opposite.

But what of the entropy change of either object? It is important that we express the temperature on an absolute scale, such as K, because then there are no negative temperatures. Dividing heat flow by positive temperature insures that entropy change always has the same sign as the heat flow. Therefore, the entropy changes of the two objects will be opposite in sign. However, they won’t be equal in magnitude. This is because we will divide opposite but equal heat flows by different temperatures. The temperature of the hotter object always will be greater than or equal to the cooler object’s temperature (but the heat flow becomes zero when they reach the same temperature). So in computing the entropy change of the hotter object, we will always divide its heat flow by a larger number than we do in computing the entropy change of the cooler object. Therefore, the absolute value of the entropy change of the hotter object always is less than the entropy change of the cooler object. When we add a positive number to a negative number that has less absolute value than the positive number, we always get a positive number. So, we find that in this experiment of heat exchange that the total change in entropy is positive. I have not given specific values in this example, so it suffices for the general case. Therefore, we can state the second law of thermodynamics with regard to heat flow between objects in an isolated system as “The entropy must always increase.” Indeed, entropy is defined in such a way as to guarantee this general result.

Note that this works only in an isolated system. If we were to consider the entropy change of the hotter object alone, its entropy change would be negative. Obviously, the second law of thermodynamics cannot apply in this case, because we have not properly formulated the system, for the system consisting of only the hotter object is not thermally isolated. However, this does not mean that the object cannot cool, for it will. To resolve this, we must expand the system to include whatever other objects the object is losing heat to, in this case the cooler object. There is a complication in that the system consisting of the two objects technically is not thermally isolated, for no matter how hard we try to insulate the two from the rest of the universe, there will be some leakage of heat into or out of the system. If we do a particularly bad job of insulating the system, it is possible that the entropy change of the system could be negative. This isn’t a violation of the second law of thermodynamics, but rather indicative that the system is losing significant heat to its surroundings. We could expand the size of the system to include the immediate surroundings, but no matter how well we do this, there will be some leakage of heat into or out of the system. However, all is not lost, because with care our systems often can approximate the idealized isolated system. In physics we often approximate idealized systems with real ones. An example would be a well-lubricated apparatus approximating a frictionless situation.

Even then, as previously mentioned in a footnote, Sommerfeld formulated the second law in differential form. Sommerfeld commented,

The statement in integral form, namely that the entropy in an isolated system cannot decrease, can be replaced by its corollary in the differential form which asserts that the quantity of entropy generated locally cannot be negative irrespective of whether the system is isolated or not, and irrespective of whether the process under consideration is irreversible or not. (Sommerfeld 1956, p. 155)

So even in cases in which the system is not strictly isolated, the second law still applies.

What does this have to do with creation? Entropy appears a bit contrived. At least it’s not as obvious or tangible as other quantities that we use in physics, such as time, mass, length, and electrical charge. This peculiar characteristic prompted physicists to cast about for some idea of what entropy is. One consequence of the second law of thermodynamics is that if there is a temperature difference within a system, we can exploit that difference to drive an engine to obtain useful work. This is the principle behind a heat engine, such as a steam or internal combustion engine. High temperature gas in one portion of the system can push against a piston or turbine en route to a region of lower temperature, thus producing work. This cannot happen if no temperature differential exists. Furthermore, the flow of heat from hotter to cooler is the direction in which the system will naturally change, but it is possible to derive useable work only if we employ some sort of device or machinery to tap the energy.

Other statements of the second law of thermodynamics describe the manner and limits of the possibility of obtaining useful work this way. Because the natural tendency is for heat to flow so that temperature differences are eliminated (this is the second law), we can say that the original configuration of a temperature difference within the system is more ordered (in which we can extract work) than the final state of thermal equilibrium (in which we can’t extract work). If this is correct, then entropy appears to be some sort of measure of how much order is present in the system. More specifically, since the second law of thermodynamics demands that entropy within an isolated system must increase, and at the same time the system moves toward less order, entropy would appear to be a measure of how much disorder is in the system. This, too, is a bit odd, because we are measuring something by how much it is absent.

The identification of entropy with the amount of disorder present in a system is consistent with other approaches to the second law of thermodynamics, such as that coming from the microscopic behavior of particles in a gas (statistical mechanics). Difficulty begins to arise when people take the disorder interpretation (considering it a mandate of decay) of entropy with little regard for the origins of the definition of entropy. Many times creationists use the words “order” and “complexity” interchangeably, but they are not the same thing. A crystal is a very ordered system, for the particles involved follow a very regular pattern. This pattern is very simple, so a crystal is not a complex system. On the other hand, a hurricane would appear to be the epitome of disorder, but it is a very complex system, as evidenced by our difficulty in modeling hurricanes. Living organisms appear to be both complex and ordered. The argument put forth by some creationists is that the second law would seem to require that order and complexity diminish with time. Related to order and complexity is information, something that living organisms contain in the form of DNA. Just as systems do not spontaneously generate order and complexity, it would seem that systems cannot spontaneously generate information either. That is, the genetic code and the machinery of living organisms could not have arisen naturally, but rather their existence requires a Creator (Gitt 2006).

While this approach has merit, some difficulties subtly creep in as well. One problem is difficulty in quantifying the entropy involved in order, complexity, or information. Entropy is easily quantified in the case of heat flow and in the order present in statistical mechanics in terms of the number of microstates. The lack of quantitative analysis of entropy when discussing order, complexity, or information leaves us with subjective means of assessment. With no objective measure, entropy, like beauty, may be in the eye of the beholder. An example of this occurred in a debate between a recent creationist and a long-age astronomer a number of years ago. Arguing from the assumption of the big bang, where the universe began with mostly hydrogen and a little helium, leaving the heavier elements to be synthesized in stars, the astronomer opined that hydrogen is less entropic than the other elements. The recent creationist scoffed at that, asking what one could make out of hydrogen. He reasoned that elements heavier than hydrogen, such as carbon, were required to build complex molecules, and hence the heavier elements must be less entropic. The recent creationist was relying upon a subjective analysis of what was possible chemically. However, hydrogen fusion is the most energetic nuclear reaction, and the hydrogen nucleus is not tightly bound compared to other nuclei. The fact that we can obtain energy from hydrogen nuclei indicates that they are far from the most entropic state. Nuclear reactions amount to a heat engine. Carbon is more tightly bound than hydrogen, and carbon can be the product of nuclear reactions that begin with hydrogen. For the record, the iron nucleus is the most entropic state. That is, if nuclear reactions were taken to their ultimate conclusion to liberate the maximum energy, all the nuclei in the universe would be iron. Therefore, the subjective judgment of entropy in this case was wrong. Such subjective assessments of the entropy ought never to trump the quantitative measurements of entropy. I will return to qualitative assessments later.

Some recent creationists argue that focusing on computational entropy is too restrictive. They insist that the second law of thermodynamics, with which physicists concern themselves, is a particular manifestation of a much broader principle. That principle is one of decay. This may be true, but until this principle is explicitly defined, different people will reach different conclusions. This indicates that this is not an exact science. It strikes me as improper that many creationists would dismiss a well-formulated, quantitative expression of the second law of thermodynamics in favor of some as of yet unframed, nebulous description of some hypothetical broader principle.

Returning to living organisms, evolutionists point out that living things are open systems, and hence the second law of thermodynamics does not apply. It is true that living organisms are open systems, particularly when we view organisms as heat engines. Living and growing things take in energy, either in the form of solar radiation used in photosynthesis or in the form of food. Organisms also take in and give off matter as well. This is the definition of an open system. However, as previously mentioned, there is a form of the second law in open systems, and it places restrictions on the maximum efficiency that a living organism may have.

Of course, in terms of entropy, one may expand the system to include the environment that the organism is exchanging matter and energy with to see that entropy actually does increase, albeit at the expense of the environment surrounding the organism. If there is a general tendency to decay, then organisms at some points appear to violate this. Multicellular organisms begin as single cells that rapidly increase in number and construct the various tissues, organs, and systems that make them up. This would amount to an increase in complexity. For many organisms, such as birds and mammals, this growth and development ceases at maturity. Eventually organisms become old and die, and many recent creationists attribute this to the supposed second law of thermodynamics generalized with regards to universal decay. But is it? Organisms have repair mechanisms that fix damage as it occurs. The repair mechanism can fix damage due to aging, thus counteracting the aging process. This doesn’t violate the second law of thermodynamics, because living organisms clearly are open systems, and so they can import the energy and material to make this happen.

However, in today’s world the repair mechanism eventually begins to fail, and this leads to aging. The repair mechanism ought to be able to repair itself, so there is no a priori reason why aging cannot be counteracted. Indeed, cells can repair some genetic errors made in copying. But it appears that all repair mechanisms are programmed to fail at some point. Evolutionists posit that this is required to make room for descendants so that evolution can function. Creationists believe that this is required by the necessity of death as the penalty of sin. The imposition of this reality did not require the invocation of the second law of thermodynamics, nor will the reversal of this reality require the removal of the second law. From a physical standpoint, all that is required for death is the designed failure of the repair mechanism, and all that is required for eternal life is the restoration of the original repair mechanism. That is, immortality can exist in a world where the second law operates, as long as the organism takes in energy and matter and can repair itself.

There are several implied features of the finished but pre-Fall world that require the second law of thermodynamics to operate. We know from [Genesis 1:29–30](http://biblia.com/bible/nkjv/Genesis%201.29%E2%80%9330) that before the Fall Adam and Eve ate, as did the animals. Digestion follows consumption of food, and digestion is an excellent example of the second law of thermodynamics in what amounts to a heat engine. Digestion removes nutrients and energy from the consumed food, but this process isn’t 100% efficient. If it were, human and animal waste would not be suitable fertilizer, nor would dry manure burn. If the process of digestion were 100% efficient, there would be a question of whether elimination of waste would be necessary. Walking is implied for both Adam and animals. However, walking requires friction, and friction dissipates energy, usually in the form of heat. This is energy that cannot be recovered and hence is unavailable for work. Hence, energy is no longer useful for work, in accordance with the second law of thermodynamics. Even seeing the sun and stars depends upon the second law of thermodynamics, because the surfaces of the sun and stars are hot, and the second law insures that heat flows via radiation from the hotter locations to cooler locations.

How do proponents of the invocation of the second law of thermodynamics at the Fall respond to these criticisms? Generally they respond as Morris did in his previously mentioned modification. They claim that some form of the second law of thermodynamics indeed existed at the beginning, but that it was not fully manifested until the Fall. At the time of the Fall the second law was amended to the way it is today. Of course, there is no biblical or physical evidence for this, but it merely is piling additional conjecture upon what was already a questionable conjecture. No clarity is offered, asserting instead how wonderful the pre-Fall world was, so wonderful that we cannot even contemplate how the second law might have operated then.

Proponents of the invocation of the second law of thermodynamics at the Fall frequently combine the effects of the Fall and the curse. It is clear from [Genesis 2:16–17](http://biblia.com/bible/nkjv/Genesis%202.16%E2%80%9317) and [Genesis 3:7](http://biblia.com/bible/nkjv/Genesis%203.7) that death as the penalty of sin was immediate. Spiritual death was immediate, but, though they didn’t physically die that instant, Adam and Eve were placed on the inexorable path to physical death at that time. The curse(s) came later, because at the very least it took time for Adam and Eve to envision and construct the fig leaf clothing. The serpent was cursed as were other animals ([Genesis 3:14](http://biblia.com/bible/nkjv/Genesis%203.14)), and the ground was cursed ([Genesis 3:17–19](http://biblia.com/bible/nkjv/Genesis%203.17%E2%80%9319)). Many treatments of the second law of thermodynamics in this context merge the effects of death and the cursing of the ground, but this is sloppy hermeneutics, for they were not necessarily imposed at the same time.

The appearance of thorns and thistles does not require the sudden change in thermodynamics. Rather, thorns could have appeared as a result of a change in the genetic structure of certain plants. Nor does the introduction of death require a change in physics, but rather a change in the biology of repair mechanisms that still operate today, but not as well as they could. Either of these effects of sin is explained easily by means other than radical changes in the physics that appear to govern the world. The insistence of the beginning of the second law of thermodynamics at the Fall is merely an assertion. Upholding the universe in perfect harmony is not the same as having the universe without the second law. It is true that we have essentially been given a “taste” of what life is like without God as of the Fall but this has little, if anything, to do with the second law.

The subjective nature of what is “ordered” or “perfect” results in another problem: the supporters of the invocation of the second law of thermodynamics at the Fall become the arbiters of what is perfect or ordered. There are numerous examples of conclusions that some recent creationists have reached based upon this questionable notion. Craters couldn’t exist in this perfect world, so all craters must be post-Fall. Supernovae fall short of this ideal of perfection, so they must be post-Fall too. The original perfect earth had to have a perfect tilt, which is zero degrees, so the original earth had no axial tilt. The current calendar arrangement of days, months, and years is less than perfect, so originally there were 30 days per month, and the year had 360 days (I’ve previously critiqued this idea—see Faulkner [2012]). But why stop there? Irrational numbers strike me as less than perfect, but I seriously doubt that the value of π changed at the Fall.

In a forthcoming paper I plan to discuss craters in the context of recent creation. Those who subscribe to the notion of the perfection of the original creation that I’m critiquing here will reject any possibility of craters existing before the Fall. The surfaces of the moon, the planets, and the satellites of the planets had to have some appearance prior to the Fall. What was that likely appearance? Were there hills and valleys? If so, what caused those? Uplift and erosion? Don’t those processes imply imperfection? If this belief about perfection is carried to its logical conclusion, one must surmise that astronomical bodies originally had perfectly spherical surfaces. But this hardly is a Christian idea. The ancient pagan Greeks thought that there were two realms—the terrestrial and the celestial. The celestial realm was perfect, but the terrestrial realm was marred by imperfection (but this was not tied to sin). This led to the division between the sacred (heavenly) and the secular (worldly) that permeated thinking during the dominance of the Roman Catholic Church.[5](http://www.answersingenesis.org/articles/arj/v6/n1/thermodynamics-and-curse#fnList_1_5)

It also stifled science. The ancient Greeks reasoned that since the heavenly realm was perfect that the heavenly bodies must follow perfect motion. They further reasoned that the circle was the perfect shape and that uniform motion was the perfect motion. Therefore, the ancient Greeks concluded that heavenly bodies must follow uniform circular motion. This led to the Ptolemaic model. The Ptolemaic model was the most successful theory in history—it was widely believed for 15 centuries. It’s no coincidence that it was rejected four centuries ago at the same time that science as we know it began to develop. This path through perceived perfection seemed reasonable to many people at the time, but now we recognize the folly of this position and how it held back scientific advancement. I fear that a similar thing is happening with many recent creationists today as they pursue a blind alley of their view of perfection that they think is required by the creation and Fall accounts. I urge rejection of this approach.

**Conclusion**

It is a common notion among recent creationists that the second law of thermodynamics came into being at the time of the Fall. This is not something that is clearly taught in Scripture, but rather it stems from a particular view of the Fall and the nature of the curse. This idea goes beyond what the Bible actually tells us, and so ought to be viewed with some suspicion. There were numerous processes present in the original creation that today we easily recognize involved the second law of thermodynamics. To account for this fact, supporters of this position suggest that some form of the second law of thermodynamics existed from creation but that it was amended at the time of the Fall to its full implementation that we have today. Alternately, some other process allegedly in force was withdrawn at the time of the Fall. Unfortunately, these ideas have not been developed to explain how it might have worked. Absent this development, this idea is just further conjecture to salvage what was conjecture to begin with. It would be most helpful if supporters of this approach would develop this further.

Many years ago, Barnes proposed that the second law of thermodynamics existed during the Creation Week or at the very least came into existence late that week. However, this idea received scant attention and almost no published support. This idea has merit, and it ought to be further developed. I hope that my effort here will spur further discussion of this important topic.

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**Footnotes**

1. This is the normal formulation of the second law. Sommerfeld (1956) formulated a differential form of the second law applicable to situations of whether the system is isolated or not. [Back](http://www.answersingenesis.org/articles/arj/v6/n1/thermodynamics-and-curse#fnMark_1_1_1)
2. I assume that since this passage comes from the chapter on “A Scriptural Framework for Historical Geology” that it primarily was written by Morris, not Whitcomb. [Back](http://www.answersingenesis.org/articles/arj/v6/n1/thermodynamics-and-curse#fnMark_1_2_1)
3. There are some brief discussions on the web, such as that of Sarfati retrieved from http://creation.com/the-second-law-of-thermodynamicsanswers-to-critics.[Back](http://www.answersingenesis.org/articles/arj/v6/n1/thermodynamics-and-curse#fnMark_1_3_1)
4. Some may surmise that this may be because things declared “good” are visible; the major thing made on Day Two was the *raqia* (expanse) that apparently is not visible. [Back](http://www.answersingenesis.org/articles/arj/v6/n1/thermodynamics-and-curse#fnMark_1_4_1)
5. The Roman Catholic Church uncritically accepted many pagan ancient Greek ideas. [Back](http://www.answersingenesis.org/articles/arj/v6/n1/thermodynamics-and-curse#fnMark_1_5_1)

**(下面中文使用谷歌翻译。需要修正和编辑。)**

第3周：第5部分

回答研究杂志6 （ 2013 ） ： 399-407 。

www.answersingenesis.org/articles/arj/v6/n1/thermodynamics-and-curse

热力学第二定律和诅咒

由丹尼·福克纳

2013年11月13日

摘要

最近许多创造论者认为，热力学第二定律应运而生的秋季或诅咒的结果。我认为这是不支持的圣经，也不是从科学的角度来看一个可防御的位置。提起热力学第二定律在秋季导致不必要的神学和科学问题。相反，我建议热力学第二定律的创造周的创造秩序的一部分（尼希米记9:6 ;歌罗西书1:16 ）期间进入了画面。

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关键词：秋天，热力学第二定律，熵。

介绍了热力学定律

热力学是关注与利用能量，功，热，以及他们各自的关系系统。物理学家定义了三种类型的热力学系统：独立，封闭和开放。一个孤立的系统交流既非物质也能与周围环境。一个真正的孤立系统不存在作为宇宙的一个子集，但是我们可以近似一个孤立的系统非常密切。一个封闭的系统，可以进行能量交换，但不能与周围环境关系。一个开放的系统，可以与周围环境交换双方的物质和能量。有四个法律热力学，称为零（0 ）法律，第一（1 ）法律，第二（2 ）法律（有时记为“法熵” ） ，和第三（3）法。每个法简述如下定义：

零：如果系统A与系统B热平衡和系统B与系统C的热平衡状态，那么系统A和C是处于热平衡状态。

第一：能量既不能被创造也不能被消灭。

第二：一个孤立系统的熵变永远不能negative.1

第三：在绝对零度下一个完美的晶体的熵等于零。

它可能看起来很奇怪，有一个零定律，但经过一些其他法律而制定的法律的制定。经过一番被确认的其他法律，物理学家意识到了第零定律的原则是比其他更基本的，所以他们在别人之前插入它。第一定律是大家熟悉的能量守恒原理。由于发现在二十世纪初的质量和能量是等效的，第一定律已经被推广到允许进行批量生产，节约能源，但只有在情况下，质能转换有关。不同的是零和热力学第一法律的直接的陈述，也有许多不同的第二个和第三个法律声明和配方。

所有这些法律工作良好圣经的框架内，但第二定律似乎脱颖而出创造论近期中。例如，在宇宙（看成一个孤立的系统） ，在哪里才能从何而来摆在首位，如果不是从神来？在另一方面，在大爆炸无神论信徒必须断定，宇宙诞生于一个非常低熵状态。但它的吸引力和讨论已导致一些神创论提出的想法，第二定律是不是原来的创造秩序的一部分，而是在人类的秋天颁布。更深入的讨论必须考虑到这个问题。

简介第二定律的创造论查看

这是最近创造论者之间的共同信念，即热力学第二定律的诅咒之时应运而生。也就是说，一个可以等同热力学第二定律的诅咒。这个想法似乎起源与亨利· Morris2where他说，

创建（或生物学家意味着通过“进化” ）实际上已经完成了手段创作过程中，这是现在换成了隐含在第二定律的变质过程。后者可能是的“魔咒”放置在地上的罪恶（创世纪3:17 ）入口的结果的一部分，它已经“遭受”的“卖身衰变的”上帝为当今时代（罗马书8:20-22 ） 。 （惠特科姆和Morris 1961 ，页224-225 ）

两年后，莫里斯扩大了他的想法。他说，

热力学第二定律的普遍有效性的证明，但没有人知道为什么它是真实的。这是严格意义上的经验定律，这一直被认为是真正的任何地方可以进行测试，但其中没有已知的自然的解释。但圣经的解释是，这是因为亚当的罪参与神在这个世界和它的整个系统的诅咒。 。 。因此，我们得出结论，圣经教导说，最初，没有障碍，无腐烂，无老化过程，没有痛苦，最重要的是，没有死亡，在世界上，当创建完成。一切都“非常好”。 （莫里斯1963年，第37页）

他继续说：

地球历史上的第二个伟大发现的事实是，人的堕落，其次是神在整个创造神的诅咒。骂人，尤其体现在对腐败和混乱和死亡在世界上的普遍倾向的影响，已经有所讨论了。热力学第二定律一直被视为近似诅咒的影响的科学声明。 （莫里斯1963年，第58页）

其他地方莫里斯重申了这一立场：

那么，这是混乱和衰退，热力学普遍适用的，所有重要的第二定律的法系怪的真正来源。这里是所有的错误与世界的秘密。人是个罪人，并带来了上帝的地球上的诅咒。 （莫里斯1976年，第127页）

巴恩斯显然不同意莫里斯的意见，因为他写的，

热力学第二定律完全清盘系统与居住到期的存在后，就开始了。 （巴恩斯1966年，第7页）

在上下文中，巴恩斯认为，热力学第二定律是有效的创造周的结束。然而，这似乎是对最近的神创论之间的一段时间，一个少数人的观点。威廉姆斯阐述了什么莫里斯曾写过：

HM莫里斯博士建议，原则熵增是诅咒上帝置于创作为亚当的罪（创3:17-19 ）的结果的一个直接结果。在创建过程将是当然的正对面，以目前的科学过程的熵原理的。在仔细检查了他新近完成的创作主看到，这是非常好的（创1:31 ） 。

如果完美圣洁的上帝创造，然后创造将是完美的。这里将是完美的自然，完美的宇宙，并以此为固态，完美结晶。然而，今天我们发现很少，如果有的话，完美的性质，而这种变化从有序到无序必须通过神圣的法令迟于创世记1:31发生。他所有的自然说话应运而生，然后大骂，因为人的罪他完美的创造。因此上帝创造的完美有序的晶体材料已经堕落，因为热力学第二定律的运作成原子无序材料。在固体结晶晶格不再表现出秩序，但都充满了中断顺序，从而导致混乱的缺陷。 （威廉姆斯1966年，第23页）

三年后，威廉姆斯回到这个主题，写作，

莫里斯认为，热力学第二定律起源当上帝诅咒，因为亚当的罪成立。在这一点上死亡进入了物理宇宙。无序和衰变过程开始于所有自然的操作（罗马书8:20 ， 22 ） 。 （威廉姆斯1969年，第146页）

而在他的结论威廉姆斯明确表示，

走向混乱和衰退的普遍趋势被调用时，上帝诅咒，因为亚当的罪成立。 （威廉姆斯1969年，第146页）

次年威廉姆斯，从罗马书8报价，写道：

对于整个创作是服在虚空之下。 。 。 （罗马书8:20 ） 。因为我们知道，整个创作叹息，劳苦，直到如今（罗马书8:22 ） 。这些基本上是热力学第二定律的圣经语句。因此很明显，宇宙是受第二定律。 （威廉姆斯1970年，第49页）

虽然这最后一条语句没有明确认可等同与熵的秋天，在他以前的作品的情况下，很显然，威廉姆斯继续划上等号的诅咒与热力学第二定律的调用。看来，尽管莫里斯可能已经构思的想法，热力学第二定律生效在秋季或诅咒时，威廉姆斯可能会更负责开发和再传播创造论者之间的这一观点。

在此期间，有一些神创论谁反对热力学与诅咒第二定律的公式，但似乎没有任何一直致力于打印。在该等意见，可能对莫里斯的效果，因为他后来软化或修改他的位置了一下，因为他写的，

在原始的创造，但是，即使我们可以称之为肯定存在“衰变”过程（如消化，摩擦，水的侵蚀，波的衰减等），它们都必须有平衡的正是与“增长”工序外移无论是在单个系统或者更常见的是，在相邻的系统，从而使世界作为一个整体的熵将保持不变。宇宙的熵现在正在增加，但理想应该与能量守恒。每一道工序和机器便拥有100 ％的效率，与所有的输入能量被转换成完全有益的工作。即使是在迫使摩擦力，其运作的过程中使用的热能将完全生产，没有能量被“丢失”没有地方会穿出来，没有生物会“时代”过去最大的活力和生产力的角度来看，每个人都可以很容易地设计和构建永动机！以上是明显的想象力，而且毫无疑问，不精确和不完整，但它可能不会太遥远。一切的设计是由一个无所不知，无所不能的神是“非常好”。第一定律会表示，截至目前，质量/能量在所有系统的养护和第二定律熵在所有系统的保护。但出现了大幅修正的第二定律！无死亡众生的生命，无论是动物还是人类，意在神的独创。 。 。但现在一切都在进行再次回到尘土，根据热力学第二定律。 “因为我们知道，整个创作叹息，劳苦，直到如今”（罗马书8:22 ） 。 。 。 。在其后期秋季形式第二定律正式公布被发现在创世记3:17-20 ： “诅咒是地必为你的缘故：你在悲伤必吃的你的生命中的每一天;荆棘和蒺藜将它带给你，你也要吃田间的菜蔬。你在你的脸必汗流吃饭糊口，直到你归了土，因为在它外面你受造取，因为你是尘土，对灰尘你要回来。 “扩展形式相同的诅咒所有的人的统治。男子带来的精神障碍对他自己的权柄，神施加适当的物理障碍的一个原则上的统治适合它作为精神状态。 （莫里斯1981年，第120页）

在这里，莫里斯似乎勉强允许在独创热力学第二定律，但他推测，其全部影响被辗转于秋季，一些其他的，未指定的维持过程中得到改善。后来莫里斯（1984 ，页195-196 ， 2002年，页180-181 ）重复了这个最后的语句字对字，表明他并没有进一步修改他的看法。莫里斯这里提到的东西，消化，摩擦（需步行） ，水侵蚀和波的衰减，是耗散过程的例子，因此是热力学第二定律的表现形式。有些动作是在预创建秋季提及或暗示的保证。消化将遵循有关吃的食物的报表（创1:29-30 ; 2:9 ， 16-17 ） 。散步是趋向于花园（创世纪2:15 ），并通过动物为大家带来的亚当（创世纪2:19 ）的工作暗示。糜烂是由河流的花园是分成四个（创2:10-14 ）暗示。莫里斯的立场批评显然已经使他意识到这些因素，但不是放弃他的论文对热力学第二定律，他选择了与猜想和一些奇特的沉思（例如，永动机）来修改它。

这一立场已经扎根最近许多创造论者之一。例如，斯坦博写，

这里既不科学，也不认股权证认股权证圣经认为老龄化，作为一个衰减的过程，是独创的一部分。因此，第二定律是肯定的堕落之前运作。但是，这并不意味着有活物中的衰减和肉体的死亡（人或海上和陆地动物和鸟类的最nephesh chayyah ）在堕落之前。 （2008年斯坦博，第382页）

而在他的简短的讨论斯坦博不调用一些法律维持在秋季的损失，他确实暗示了这种可能性，但是，更重要的是，他分开住的东西作为热力学第二定律的简单结果的死亡和腐烂。聪明更明确同意莫里斯的后视图：

这样看来，是什么导致了诅咒的规模化效应不是引入新的法律（热力学第二定律），但其他一些法律的悬浮液。有趣的是，一些在独创设计的好（第二定律）可以 - 与“小”的变化为另一法律原因暂停什么一般被看作是巨大的负面影响。这与原来的创作是由上帝的，因为它可能存在（至少暂时）在一个堕落的状态，这样的方法创作的想法是一致的。 （2002智者，第160页）

与第二定律的表现必须有之前存在的秋季入学，一个人应该质疑最初的猜想，即热力学第二定律是与秋季划等号。这是特别重要的，一旦1从作为斯坦博做第二定律分离死亡。不幸的是，最常见的反应是由假设到一个额外的猜想一些其他的法律，取消了原先第二定律的更繁重的影响，但停止在秋天存在保留在本质上原来的猜想。与其他科学家创建的讨论，很显然，很多人拒绝莫里斯的立场，而不是订阅的位置更接近采取的巴恩斯。也就是热力学第二定律是有效的，至少在创造周的结束。这是一个有点古怪，很少有这些人已承诺其print.3在本文看来，我试图解决这方面的不足。

是“非常好”等同于完美？

有迹象表明，我们必须解决的几个问题。首先，许多人的事实，上帝是完美的，祂的创造也必须是完美的结束。这更是一个断言，而不是结论。因此，那些谁主张使用一些圣经经文，以使他们的情况。一个是申命记32:4 ，其中规定“ 。 。 。他（上帝的）工作是完美的。 。 。 ，“推断打算在这里工作是创造。但果真如此吗？并没有在这里使用意味着完美，因为有些人把这个词的含义？在上下文中，这首诗篇摩西在申命记32是关于以色列人民的反叛。第6节明确指出，神使以色列人，所以很明显神的工作是远远不够完善，如果是这样的本意。

然而，关键路径可能是“非常好”创世纪1:31中，有些采取的意思是“完美”，但就是这个被这里的希伯来文的支持吗？前31节的希伯来字“好”是用在积极的意义上六次来形容创作的各个部分（光，海陆分裂，植物，天体，鱼和家禽，陆生动物） 。有趣的是，这说明在第三天的帐户出现了两次，但不是在所有的第二天account.4

此外，在创建帐户这个词是用来曾经在消极意义上，在创世记2:18神说，这是不好的，人是孤独的。什么是中提到的这些用法的好？有希伯来语意为“好”这里至少有两个可能的含义，它们反映了我们的两个词“好”在英文中的含义，所以这是一个很好的翻译。一个可能的含义指的是道德。由于罪恶和污点和罪恶的后果还没有进入这个世界，这将是适当的。然而，这个词也可以传达完整性或目的的意义。当然，这是本意在创世纪2:18中，亚当是不完整的夏娃。

只是每个字“好”创世纪第一章的六个用途可能是指的什么神所造的，完整的，因为他已经完成了什么，他本来打算为每一个他的创作行为。因为他们是完整的，他们也履行了预期的目的。在创造周的结束，这是适当的，上帝随后宣布所有的“非常好”，因为他已经完成了什么，他已经开始着手做。也就是说，只要他们去完成时，每个神的创造行为是好的，但它不是直到全部完成了它最好的总结与的宣告“非常好”。安德森看到更完整的配套文件（ 2013年）在这个题目。

不过，我们可以等同于这个“非常好”与完美？因为罪的污点还没有进入这个世界，肯定。但是，再有就是用含糊其辞的一个问题，因为我们经常用“完美”的几种不同的方式。在道德上完美的意思是没有罪的。我们还描述了一些作为完美的，如果它是没有残疾的或错。但一个污点或故障并不一定有道德的组成部分。例如，全勤意味着一个没有错过一个会议，但并没有什么不道德的失踪疾病或丧亲会议。一个完美的试纸有没有错误的答案，但并没有什么不道德的，不知道正确答案的一个问题。一个完美的解决问题的方法解决了这个问题，而不会引入新的问题。在物理领域，我们经常讲的故障或缺陷，即使是不涉及道德的组成部分。在提供逾越节的祭品，羊肉必须是一尘不染（完美） ，但是这并不排除任何遗传缺陷在场。事实上，我们今天了解所有的羔羊携带一些基因突变，但这些突变并不体现在一个“完美”的羔羊。大多数固体颗粒组成，所述颗粒是原子，离子或分子的结晶阵列。晶体通常具有颗粒的交替图案，使得一旦人知道的模式，也无法预测的特定粒子的位置和身份的晶体中的任何地方。但是，所有的晶体都从模式的偏差。这些偏差是在这个意义上的缺陷，他们功亏一篑简单的模式的理想选择。其实完全没有罪或不道德参与，但威廉姆斯（ 1966 ）认为，这种情况违反了初始创建的完善，从而得出结论，所有的晶体最初是完美的（无缺陷） 。再次，这是含糊其辞，这个词完美使用两种不同的含义。

为了说明这个位置的荒谬，考虑钻石，这是一个晶体。金刚石具有折射指数高，因此光被弯曲和钻石内分散。这是什么给了钻石的丰富和充满活力的色彩。许多方面大大增加这种错觉，从而多方面提高钻石的外观。在另一方面，缺陷的晶体中的存在可以与光通道中的金刚石干扰，因此从外观上得出。因此，在钻石的缺陷数量在很大程度上决定了石头的缺陷少是钻石有一个给定的尺寸，更具吸引力，并且因此更有价值，钻石将是的值。

以改善外观，金刚石刀具形成结石最大化面数。钻石是本质上最硬的物质，所以我们不能轻易切割钻石与锯。相反，钻石切割经常利用水晶切割的平面之间自然发生的弱点，或折断，钻石生产这些方面。然而，平面之间这些弱点是从理想的晶体的偏差，从而达到在晶体中的缺陷。也就是说，一个“完美的”钻石（一个没有瑕疵）无法进行切割。在它的外观，我们不能提高，所以除非这个“完美”的钻石已经拥有了大量的小平面，它不会因为漂亮就多漂亮。这就引入了一个catch -22 ：这个“完美”的钻石会不会很漂亮，因为它可能是，因此它是不完美的。即使在这里，我支吾以对，我用这个词来指钻石没有缺陷，是指钻石与精美的外观词“完美” 。当然，人们可以说，如果钻石的存在，在原来的创造，所有的人都不得不方面没有缺陷的最大数量。这不是我们如何来寻找钻石，所以这相当于一个新的断言，并导致在猜想打桩猜想打捞是不需要用圣经经文教学。

熵

热力学第二定律可能是科学的slipperiest的事情之一。其中一个原因是，第二定律有很多的表现形式，因此许多不同的报表。我什至不会尝试描述第二定律的很详细。在其最基本的形式中，第二定律描述了热流动自发地，从热到冷的区域的方向。为了表达这一点，我们定义了一个称为熵量。熵是热流量对温度的比率，因此熵具有热流的单位除以温度。在物理学中，热量的标准单位是焦耳，而温度的标准单位是开尔文，所以熵的标准单位是焦耳/开尔文，简称J / K。考虑两个对象，一个热，一个冷却器。如果我们把两个物体彼此相邻，这样热量可以在它们之间流动（我们说，他们是在热接触） ，我们会发现，将热量从热流向较冷的物体，直到其温度平衡（当我们说他们已经达到热平衡） 。为了计算任一物体的熵变，我们仅仅由它的温度划分或物体的热流。温度热流过程中不断变化，所以这不是一个简单的计算，但我们可以仔细考虑有关情况，以达到一些广泛的结论。由于炎热的对象失去热量，其热流量将是负面的。但在冷却器对象的热流将是正的，因为它获得热量。如果所涉及的唯一的热流是两个对象之间，那么总热流将为零，因为1的增益是在其他的费用。如果这个条件得到满足，那么我们说这个系统（两个对象）是热隔离。这确保了两个物体的热流量相等，方向相反。

但熵变的无论是什么对象？重要的是，我们表达了温度上的绝对尺度，如K ，因为那时没有负的温度。由正温度除以热流确保了熵变化总是具有相同符号的热流。因此，在两个物体的熵的变化将是符号相反。但是，他们不会大小相等。这是因为我们将分对立面，但平等的热流通过不同的温度。较热的物品的温度总是会大于或等于所述冷却器物体的温度（但热流量变为零，当它们达到相同的温度） 。因此，在计算热物体的熵变，我们将始终以一个较大的数字将其热流比我们在计算较冷物体的熵变。因此，在较热的物体的熵变的绝对值总是小于所述冷却器物体的熵变。当我们增加一个正数到具有较少绝对值比正数负数，我们总能得到一个正数。于是，我们发现，在这个实验中热交换，在熵的总变化是积极的。我还没有给出具体值在这个例子中，这样就足够了，一般情况下。因此，我们可以说明热力学第二定律就在一个孤立系统“熵必须增加。 ”的确对象之间的热流，熵以这样的方式定义，以保证这一总体结果。

请注意，这仅在一个孤立的系统。如果我们单独考虑热物体的熵变，它的熵的变化将是负面的。显然，热力学第二定律不能在这种情况下适用，因为我们没有正确地制定制度，为仅由较热的对象不热隔离系统。然而，这并不意味着该对象不能冷却，因为它会的。要解决这个问题，我们必须将系统扩展到包括任何其他对象的对象失去热量，在这种情况下，冷却器的对象。目前在由两个对象的系统在技术上是不隔热的，对于无论我们怎样努力，以隔离两个来自宇宙的其余部分的并发症，会有一些热量漏入或退出系统。如果我们做绝缘系统的一个特别恶劣的工作，它可能是该系统的熵变可能是负的。这是不是违反了热力学第二定律，而是表示，该系统正在失去显著热量，它的周围。我们可以扩展系统的规模，以包括周围环境，但不管我们如何做到这一点很好，会有一些热量漏入或退出系统。然而，一切都没有失去，因为有照顾我们的系统通常可以近似理想化的孤立系统。在物理学中，我们常常近似理想化的系统以假乱真。一个例子是一个良好的润滑装置，近似无摩擦的情况。

即使这样，由于以前在脚注中提到，索末菲在微分形式制定了热力学第二定律。索末菲说：

积分形式的声明，即在一个孤立系统的熵不可能减少，可以通过其推论的微分形式，它断言本地产生的熵的数量不能为负数而不论该系统是否是孤立的或不取代，不论所考虑的过程是否可逆与否。 （索末菲1956年，第155页）

所以即使在案件中，系统没有严格隔离，第二定律仍然适用。

这是什么都与创造？熵似乎有点做作。至少它没有那么明显或有形的其它量，我们在物理使用，如时间，质量，长度和电荷。这种奇特的特性促使物理学家投有关的熵是一些想法。热力学第二定律的一个后果是，如果有一个系统内的温度差，就可以利用这种差异来驱动发动机来获得有用的工作。这个原理是后面的热机，例如蒸汽或内燃机。在系统的一个部分的高温气体可以推压活塞或涡轮途中温度较低的区域，因此产生的工作。如果不存在温度差这是不可能发生的。此外，热到冷的流量是热的方向，系统自然会改变，但有可能得到可用的工作，只有当我们使用某种设备或机械挖掘能量。

热力学第二定律的其他语句描述的方式和获取有用的工作这样的可能性的限制。因为自然倾向是热流动，使温度差被消除（这是第二定律） ，我们可以说，在系统内的温度差的原始结构更有序的（其中我们可以提取工作），比热平衡（我们不能提取工作）的最终状态。如果这是正确的，那么熵似乎多少顺序是系统中存在的一些措施。更具体地说，由于热力学第二定律的分离系统内熵该需求必须增加，并且在同一时间，系统移向更低顺序，熵似乎是多少病症是在系统中的测量。这也有点奇怪，因为我们要测量的东西被它多么不存在。

熵与病症的本系统中的量的识别是用其他方法以热力学第二定律，如从气体（统计力学）中颗粒的微观行为来保持一致。困难开始出现，当人们把这种疾病的解释（考虑到它衰变的任务）熵很少考虑熵的定义的起源。很多时候，神造论用四个字“秩序”和“复杂性”可以互换，但它们不是一回事。晶体是一种非常有序的系统，所涉及遵循一个非常规律的颗粒。这种模式是非常简单的，所以晶体是不是一个复杂的系统。在另一方面，飓风似乎是无序的缩影，但它是一个非常复杂的系统，就证明了我们在模拟飓风的难度。生物体似乎是既复杂又有序。提出的一些神创论的说法是，第二定律似乎需要秩序和复杂性降低与时间。订购产品和复杂的信息，一些生物体中含有DNA的形式。正如系统不产生自发秩序和复杂性，它似乎是系统不能自发地产生任何信息。也就是说，遗传密码和生物的机器不可能自然产生的，而是他们的存在需要一个造物主（二零零六年GITT ） 。

虽然这种方法有可取之处，一些困难微妙蠕变为好。一个问题是难以量化涉及次序，复杂性，或信息熵。熵容易量化的热流的情况下和在存在于统计力学的微观的数量而言的顺序。熵定量分析的讨论秩序，复杂性，或者信息时，缺乏给我们留下了评估的主观手段。由于没有客观的衡量，熵，像美的，可能是在旁观者的眼睛。这方面的一个例子是发生在最近的创世和长年龄天文学家的若干年前的一场辩论。

结论

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脚注

1 。后面

2 。后面

3 。

4 。后面

5 。后面