

D. Fisher
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**FEATURE: How Old Is the Universe?
(First in SERIES of 2)
宇宙的年龄有多大?
(系列之一)**

VOICE: How old is the universe? How do we know that?

宇宙的年龄有多大? 我们怎么才可以知道呢?

PROF.: And when was “the beginning,” when “God created the heavens and the earth”?

我们所说的“开始”是什么时候，“神创造天与地”又是什么时候?

TAPE: THEME AND ANNOUNCEMENT

主题和申明

VOICE: Two similar questions came in our mail in various forms. From Belarus, Yuri wrote, quote, “According to your estimation, what is the age of the earth? What proving arguments could you present?” End quote.

And Artur asks from Ukraine, quote, “How many days or years did God need to create the universe?”

在我们的信箱里，收到了内容相似，形式不同的两个问题，。一个是来自白俄罗斯的余力，他问到：“根据您的估计，地球的年龄有多大？您能提供的证据有哪些？”

另一位是乌克兰的阿特，他问的问题是：“神要用多少天来创造这个宇宙？”

PROF.: If Artur meant, “What was the minimum amount of time in which the all-powerful God *could have* created the universe?”, the answer is fairly easy.

We know that the more powerful something is, the less time it takes to accomplish a certain amount of work.

如果阿特问的意思是“万能的神创造宇宙需要的最少时间是多长？”那答案会相对简单些。

我们知道，某物体的能力越大，他完成一个特定工作，所需要的时间会越少。

VOICE: Because the time needed to do a certain amount of work, is *inversely proportional*¹ to the amount of power doing it?

因为完成一个特定工作所需要的时间，是和从事这项工作的能力成反比的，对吗？

PROF.: Right. God has infinite power. Theoretically, he could do anything in no time.² So the minimum amount of time in which the all-powerful God *could have* created the universe would be zero hours, zero minutes.

是的。神的大能是无限的，理论上来说，他可以瞬间完成任何工作。所以，万能的神所需要创造宇宙的最短时间可以是瞬间。

VOICE: But isn't that a different question from: How long *did* God take to create it?

可是，原问题是：神创造宇宙需要多久？这不是一个同样的问题吧？

PROF.: Yes. In fact, a different version of Artur and Yuri's question came up in a news magazine in June, 1997. *U.S. News and World Report*³ published an article entitled, "The geophysics of God." It told about Dr. John Baumgardner [BAUM-gard-ner], a world expert in his specialty of geophysics.

1 In mathematics, "inversely proportional" is the opposite of "directly proportional." For example, the more power a car has, the less time it takes to travel a certain distance.

2 Zero seconds.

3 Please say it first in English, then in your language.

Dr. Baumgardner is internationally famous for having devised a computer program named Terra [TAIR-uh].”

不是。实际上，在新闻杂志《美国新闻和世界报道》1997年六月期上，刊登了一篇文章，标题是“神的地球物理学”，文中所讨论的，可以看做是阿特和余力问题的不同版本。约翰.波姆加特博士在地球物理学领域，是一位世界级专家，他设计了“太如”电脑程序，并因此全球闻名。

VOICE: Isn't "Terra" the Latin word for "Earth"?

“太如”就是拉丁语里“地球”的意思吧？

PROF.: Yes. The article states, quote, “Terra was created by the world's pre-eminent⁴ expert in the design of computer models for *geophysical convection*, the process by which the Earth creates volcanoes, earthquakes, and the movement of the continental plates.

“Terra exists because its creator, John Baumgardner [BAUM-gard-ner], is a... Christian who believes...that the Earth was created by God less than 10,000 years ago.

“In fact, Baumgardner created Terra expressly to prove that the story of Noah and the flood of Genesis 7:18 – ‘And the waters prevailed, and were increased greatly upon the Earth; and the ark went upon the face of the waters’ – happened as the Bible says.”

是的。文章说：“太如程序是世界上最杰出的专家编制的。程序以一个设计好的电脑模式，控制地球的物理对流现象。通过这样一个程序，控制地球的火山爆发，地震，以及地壳的运动。

约翰.波姆加特先生是...一位基督徒，他相信...地球是在一万多年前，由神创造的。

正因为他的信仰，“太如”程序才得以存在，。

4 Top, best.

实际上，波姆加特博士设计的太如系统，可以清楚明白地验证创世记七章18节描述的挪亚和洪水的故事，— ‘水势浩大，在地上大大地往上涨，方舟在水面上漂来漂去。’ — 正如圣经所记载的一样。”

VOICE: How does Dr. Baumgardner's computer program work?

波姆加特博士的电脑程序是怎么运行的呢？

PROF.: Terra begins by taking the volume ⁵ of the Earth's mantle ⁶ – the silicate rock that surrounds the Earth's solid iron core – and dividing it into 10 million three-dimensional parts.

The article adds, quote, “The mantle rock is solid, but over long periods of time it moves and flows, behaving as if it were a fluid... More than 150 kilometers inside the Earth, rock reaches...80 percent of its melting temperature. The mantle rock moves for the same reasons boiling water rolls in a pot: Cooler material on top *sinks* while hotter material nearest the heat source is lighter, and so *rises*.”

太如程序首先通过测量地球表面的覆盖物，这是一种环绕着地球的，固态铁核心的硅酸盐岩石；之后呢，程序再在三维状态下，将之分为一千万份。

文章补充说：“岩石覆盖物是固态的，但是，在较长的时间里，岩石会象液体一样移动...地表以下超过150公里，岩石的温度会...达到80%的融化温度，岩石覆盖物的运动状态，很像壶中的开水一样：水加热后，表面的低温部分会沉下去，靠近热源的部分温度会升高，变轻，然后就冒上来。”

VOICE: And the computer simulates ⁷ all of this structure and its movements.

⁵ The measure of the cubic kilometers.

⁶ The soil, sand, dirt and other loose material that covers the solid bedrock of the Earth.

⁷ Calculates and electronically duplicates.

电脑模仿了所有这些结构和运动。

PROF.: Yes. Continuing, quote, “Terra divides the mantle into hexagonal cells, giving each one a value for heat, direction and velocity – as if creating 10 million small blocks to make up an immense, three-dimensional...cube. Terra ‘runs’ each piece through time and watches where each goes.

“On a monitor screen,⁸ neon greens and blues representing cooler material swirl with hot yellows and fiery reds inside a sphere, and you see how the mantle has pushed the continents around on the planet’s surface through the centuries.”

是的。文章说：“太如将这些覆盖物分解成六边形的单元，赋予每一个单元一个热值，方向值和速度值，就像创建一千万个小方块，来搭建成一个三维的巨大立方体...太如时刻管控着各个部分，监控着他们运行的方向。

在电脑显示屏上，绿色和蓝色代表冷物质，和亮黄色和火红色的物质一起，在球体内部旋转。你可以看见几个世纪以来，整个覆盖物是如何在地球表面推动陆地的。”

VOICE: How did Dr. Baumgardner’s study of the Bible motivate him to invent the Terra computer program?

波姆加特博士对圣经的研究是如何启发他自己，去发明编制了太如这个电脑程序的呢？

PROF.: Yes. He studied the Bible book of *Genesis* and several commentaries that interpret it. He developed the opinion that the Earth and the entire universe are really only a few thousand years old.

⁸ A computer screen.

When he read about the flood of Noah's day, he became convinced that, quote, "...indeed there had been a major catastrophe in the Earth's past that accounts for a large fraction of the geological features we observe at the Earth's surface today."

他仔细研读圣经的创世记，以及一些注解文章。他形成了一种观点，那就是地球和整个宇宙，真的是只有几千年历史。

当他读到挪亚时代的洪水，他确信：“...历史上的地球，确实发生过一次重大的灾难，并因此形成了，我们今天所观察到的，地球表面的绝大部分的地质特点。”

VOICE: Does he think geophysics explains how God caused the flood?

他是不是认为地球物理学可以解释神是如何引发那场洪水的？

PROF.: Yes. Dr. Baumgardner believes that God caused an enormous amount of hot mantle material to come rushing up at incredible velocity through the underwater ridges in the middle of the ocean. He theorizes that the material displaced a tidal wave⁹ of sea water over the continents. He believes this was the flood on which Noah sailed, when the water covered the mountains and destroyed every animal and human that was not inside the ark.

He theorizes that the mantle material later returned to the ocean bottom at the same speed that it had come upward. He calculates that if the continents began re-emerging above the water, water would run off the continents into the oceans at around 160 kilometers an hour.

是的。约翰·波姆加特博士相信神让大量的灼热的覆盖物质，以惊人的速度，从洋底中心地带的山脊冲出来。在博士的理论化状态下，该物质被用潮汐带来的海啸替代了，海啸的爆发使海水淹没陆地。他相信当年，就是这场洪水淹没了群山，毁灭了所有方舟外的动物和人类，而挪亚却呆在航行其上的方舟里。

他推论这一覆盖物质，后来又以当初的爆发速度，退回到洋底。他还通过计算得出，如果陆地要开始从水里重新显现出来，水应该以每小时160公里的速度，急速从陆地退回海洋。

VOICE: That's about ten times as fast as any river I've read about.

这个速度，是我读到的，有关任何一条河流流速的十倍。

PROF.: Well, Dr. Baumgardner says that's a realistic concept of what a world-wide flood would have done. He add that this runoff would have been sufficient to create the Grand Canyon and other massive geologic features and to deposit the various sedimentary layers in about one week.

波姆加特博士说，这是关于当时所发生的，这一世界范围内的洪水，所有的一个很现实观念；他还补充说这样的水退过程，足以形成大峡谷，以及其他一些宏伟的地质结构；并在大约一周的时间里，留下各样的沉积层。

VOICE: Most geologists say these events would have taken millions of years.

大部分的地质学家说这些现象要经过几百万年的形成过程。

PROF.: That would be true, at the rate at which geological processes are proceeding today. But if Dr. Baumgardner is correct, the flood was a unique event – with more water flowing with greater speed and force than at any other time in history.

He also calculates that the speed and pressure would have *heated* the rock to make it more flexible and easier to bend rapidly into canyons and other geological formations.

如果按今天的地质运动速度，那样的一种说法也可能是对的。不过，如果波姆加特博士是正确的，那场洪水是一次史无前例的，独特的现象，当时的洪水，比历史上任何时期的水量都大，速度更快，场面也更宏伟。

他通过计算，还得出了速度值和压力值。在这样的数值下，岩石温度会升高到一个值，使岩石更可能，更容易迅速断裂，形成裂谷，以及其他地质构造。

VOICE: Does the computer program agree with him?

电脑程序的运行是不是和他的推论相吻合呢？

PROF.: Yes and no. Quoting the article, “Terra proves that this is true – or that it *could* be true, provided one accepts certain assumptions. Run Terra one way, and you can watch Noah's flood take place before your eyes, mathematically calculated by a supercomputer. Run Terra another way, and you get the standard geological story of 4.6 milliard years. Dr. Baumgardner points out that the results obtained from the code *depend on the numbers fed into it in the first place.*”

可以说‘是’，又可以说‘不是’。文章是这么说的：“太如程序证明这是真的——或者说可以是真的，前提是我们能接受一些特定的假设。以一种方式运行太如程序，在一个巨型计算机的数学计算下，你可以观察挪亚洪水在你眼前发生；换一种方式运行太如程序，你得到的会是标准的，有关地球的46亿年的地质故事。波姆加特博士指出，解码后所得到的结果，决定于第一地点输入的数据。”

VOICE: How can we know which set of numbers are correct?

那我们怎么知道哪组数据是正确的呢？

PROF.: I'm not sure we can. Both possibilities rely on assumptions.

我不知道我们是不是可以，因为两种可能性都依赖于设想。

VOICE: Don't most scientists assume that natural processes have always worked in the same ways that they're working today?

是不是大多数的科学家都假想，自然一直是以和今天一样的方式在运行？

PROF.: Yes. And people who believe the Bible assume that God can do miraculous things.

是的。相信圣经的人会认为神能够行奇妙的事。

VOICE: Do those ideas have to conflict with each other?

这些观点互相冲突吗？

PROF.: Not necessarily. The Bible says that the universe began with a miracle – the creation of

something from nothing. In the twentieth century, astronomers made discoveries that

forced them to agree that the original matter seems to have been created from nothing.

没有必要。圣经说宇宙的开始是一个奇迹，是一个从无到有的过程。在二十世纪，

天文学家的观测结果让他们同意这样一个观点，那就是：起初是从无开始的。

VOICE: But don't some scientists think God was the one who did the creating, while others theorize ways that nothing could have turned into something without God?

可是，有些科学家并不认为神是创造者；而另外一些科学家呢，则用理论化的途径来证明，如果没有神的话，不可能完成从无到有的过程，是这样的吗？

PROF.: Yes. They also disagree on what happened *after* the original matter was created. For

example, how rapidly did matter come together to form galaxies, stars and planets?

是的。关于在起初的创造之后，所发生的事情，他们也不能表示同意。比如说，关于物质是以什么样的速度，聚集到一起，并形成星系，星星和星球？

VOICE: Dr. Baumgardner believes the canyons and geological features of Earth were formed very rapidly, by a world-wide flood and events that God controlled.

In fact, didn't he also say he thinks the *entire universe* is less than 10 thousand years old?

波姆加特博士相信裂谷和地球上其他地质特征是急遽变化下形成的，是神所控制的一次世界范围内的洪水造成的。

实际上，博士并没有说他认为整个宇宙的形成是在一万年以内，是吗？

PROF.: Yes. He thinks that for a few years the universe behaved completely differently, compressing processes which now take millions of years into merely days.

是的。他认为，这些年来，宇宙的反应是完全不一样的，我们所认为的，一个需要几百万年的时间，才可能完成的过程，可能仅仅需要几天。

VOICE: In other words, God continued to do miracles of creation for several years, not just at the moment of the first creation?

换句话说，神之后的几年，仍继续行着创造的奇异的工，并不仅仅是在起初创造的那些时间里，对不对？

PROF.: Yes, according to what is called the "young-earth" interpretation.

根据“年轻地球”的解释，是这样的。

VOICE: Does the Bible really say that?

圣经有没有真地这么说呢？

PROF.: Some people think it *implies* that. But not every Bible-believing Christian interprets it that way.

有人认为圣经暗示了这层意思，不过，不是每一个信服圣经的基督徒都会作出这样的解释。

VOICE: What alternatives are there? Does the Bible really contradict many things that scientists think they have learned through the centuries?

这有什么选择么？圣经是不是真地，和几个世纪以来，科学家们所观察了解到的很多现象相冲突？

PROF.: No. Scientists have recently learned that the Bible was right all along when it said the universe had a beginning. One astronomer made the comment that scientists have taken centuries to climb a mountain by acquiring knowledge. And when they reach the peak of the mountain, they discover a band of theologians who have been sitting there for centuries!

没有。最近，科学家了解到，其实圣经说宇宙有一个起点，这个观点一直是正确的。一位天文学家发表评论说，科学家们花了几个世纪的时间，去征服一座知识的山，而当他们到达峰顶的时候，他们发现有一群神学家，已经坐在那几个世纪了！

VOICE: So scientists and Bible scholars agree now that matter is not eternal – that there was a beginning.

But we haven't completely answered our two listeners' questions: "According to your estimation, what is the age of the earth? What proving arguments could you present?" And "How many days or years did God need to create the universe?"

所以，科学家和圣经学家达成一致意见，认为物质非永恒，世界有一个起点。

但是，我们还没有完全回答那两个听众的问题，一个是：“根据我们的推测，地球有多大了？您能提供的证据是什么？”还有一个问题是：“神需要多少天，或者多少年来创造这个宇宙？”

PROF.: That's a more complicated question than we can answer in the time we have left today.

We'll have to continue our discussion on our next program.

看来，我们今天所剩的时间，是不足以回答这两个问题了。我们会在下次节目中，继续我们的讨论。

TAPE: THEME AND ANNOUNCEMENT

主题和申明

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