

## The Origin of the Cosmos

On Sunday we began a new sermon series on Faith and Science inspired by Dr. Francis Collins' best-selling book *The Language of God: A Scientist Presents Evidence for Belief*.

1. Warm-up Question: When you were in school, did you ever do a science project? What was your favorite science project?
2. Many people of faith are hostile toward science and many scientists are hostile toward faith. As a young adult working on his Ph.D. in physical chemistry at Yale, Francis Collins concluded that, "No thinking scientist could seriously entertain the possibility of God without committing some sort of intellectual suicide." But as he dug deeper into science, he began to realize that "life makes sense," and began finding a harmony between faith and science. Collins eventually became a believer.
  - a. Looking back over your life, how would you describe your relationship with science? Where did that attitude come from? Has it evolved? If so, why?
  - b. Why do you think churches are often hostile toward science?
3. Read a summary of the current scientific understanding of how the cosmos came into being through the Big Bang Theory, as found on p. 3. When you read this summary of the creation of the cosmos, what thoughts or emotions arise within you?
4. Although the Bible says a fair amount about the creation of life on earth (which we'll talk about in a couple weeks), it actually says very little about the creation of the broader cosmos. Jeff suggested that what the Bible does say about the cosmos is consistent with the Big Bang Theory.
  - a. Romans 4:17 says, "God . . . calls into existence things that do not exist." From statements like this we get the notion that God created *ex nihilo*, i.e., "from nothing." In your view, is the Big Bang Theory consistent with this viewpoint?
  - b. Psalm 33:6 says, "By the word of the Lord the heavens were made, and by the breath of God's mouth all their hosts." In your view, is the Big Bang Theory consistent with this viewpoint?
  - c. Genesis 1:1 says, "In the beginning, God created the heavens and the earth. . . . Then God said, 'Let there be light,' and there was light. . . ." This all happened on the first "day." Then on the fourth "day," God said, "Let there be lights in the dome of the sky to separate the day from the night, and let them be for signs and for seasons and for days and years." Genesis 1:14. In your view, is the Big Bang Theory consistent with the Genesis viewpoint?
  - d. When there is tension between faith and science, does that bother you? When there is conflict, which should prevail, faith or science?

5. Some people believe we don't need God to explain creation of the cosmos. By contrast, Collins argues that a cosmic explosion could not reasonably give rise to complex life without being guided by an Intelligent Designer. Collins offers many examples, but here's one: If the rate of expansion one second after the Big Bang had been smaller by even one part in 100 thousand million million, the universe would have recollapsed before it ever reached its present size. On the other hand, if the rate of expansion had been greater by even one part in a million, stars and planets could not have been able to form. From examples like this, Collins concludes, "The existence of a universe as we know it rests upon a knife edge of improbability." Jeff tried to illustrate this with his Jenga blocks example, concluding that it is more reasonable to believe an Intelligent Designer guided creation than to believe such complexity could result by random chance alone. Your thoughts?
  
6. Read Psalm 19:1-4, as printed on p. 3. This passage says that we can learn a lot about God from observing the cosmos. In other words, we can learn a lot about God from science. Jeff suggested at least three lessons we can learn from what science tells us about creation of the cosmos. **First, we should live with a constant sense of amazement and awe.**
  - a. When you look at the night sky, what do you think or feel?
  - b. It's easy to get so preoccupied with the minutia of life, we end up living with our nose to the grindstone, failing to take in the wonder of creation. Do you feel like your soul is "in touch" enough with the wonder of creation? Why or why not?
  - c. What's the most amazing thing you've ever seen in nature?
  
7. **Second, although God is great, and we are tiny by comparison, we are truly an extension of the magnificence of the cosmos and a product of it.** Lawrence Krauss put it this way: "Every atom in your body came from a star that exploded. And the atoms in your left hand probably came from a different star than the atoms in your right hand. It really is the most poetic thing I know about physics." As Collins says, "You are truly made of stardust." How does that perspective impact you?
  
8. It's one thing to say we're made of stardust, and quite another to feel it and live it, which brings us to the third point. **We serve a God who specializes in creating *ex nihilo* – making something out of nothing. That's true on both the cosmic level and in our own personal lives.**
  - a. Tell us about a time in your life when you've seen God create something out of nothing?
  - b. Where in your life right now do you most need to believe in a God who specializes in creating something out of nothing?

*Next Sunday we'll take up this question: Suppose intelligent life was discovered somewhere else in the cosmos. Would that affect your faith? Should it? Are we alone? What does science say? What does the Bible say?*

## The Big Bang Theory: A ‘Cliff Notes’ summary from Collins’ book

At the beginning of the 20<sup>th</sup> century, most scientists assumed a universe with no beginning and no end. But that presented a problem. If the universe was static and eternal, it should be collapsing on itself from the force of gravity. Then in 1929 Edwin Hubble made an astounding discovery. Everywhere he looked through his telescopes everything was flying apart – in other words expanding.

Subsequent observations and calculations have confirmed Hubble’s observation and convinced the vast majority of scientists that the universe began at a single moment approximately 14 billion years ago. In his book, Collins summarizes compelling scientific evidence that our universe was once “an infinitely dense, dimensionless point of pure energy” smaller than the size of my fist . . . that suddenly exploded, giving rise to the entire known cosmos. Which naturally leads to the question: What caused it to explode? According to Collins, the answer is . . . we don’t know. Science has not yet been able to answer that question. We simply know that it happened and what followed. In the words of Collins . . .

“For the first million years after the Big Bang, as the universe expanded, the temperature dropped, and nuclei and atoms began to form. Matter began to coalesce into galaxies under the force of gravity. It acquired rotational motion as it did so, ultimately resulting in the spiral shape of galaxies such as our own. Within those galaxies local collections of hydrogen and helium were drawn together, and their density and temperature rose. Ultimately nuclear fusion commenced. This process . . . provides the major source of fuel for stars.

Scientists believe our own sun did not form in the early days of the universe. Our sun . . . formed about 5 billion years ago by local re-coalescence. As that was occurring, a small proportion of heavier elements . . . escaped . . . and collected into the planets that now rotate around our sun, including our own planet.”

## **Psalm 19**

To the leader. A Psalm of David.

- <sup>1</sup> The heavens are telling the glory of God;  
and the firmament proclaims God’s handiwork.
- <sup>2</sup> Day to day pours forth speech,  
and night to night declares knowledge.
- <sup>3</sup> There is no speech, nor are there words;  
their voice is not heard;
- <sup>4</sup> yet their voice goes out through all the earth,  
and their words to the end of the world.