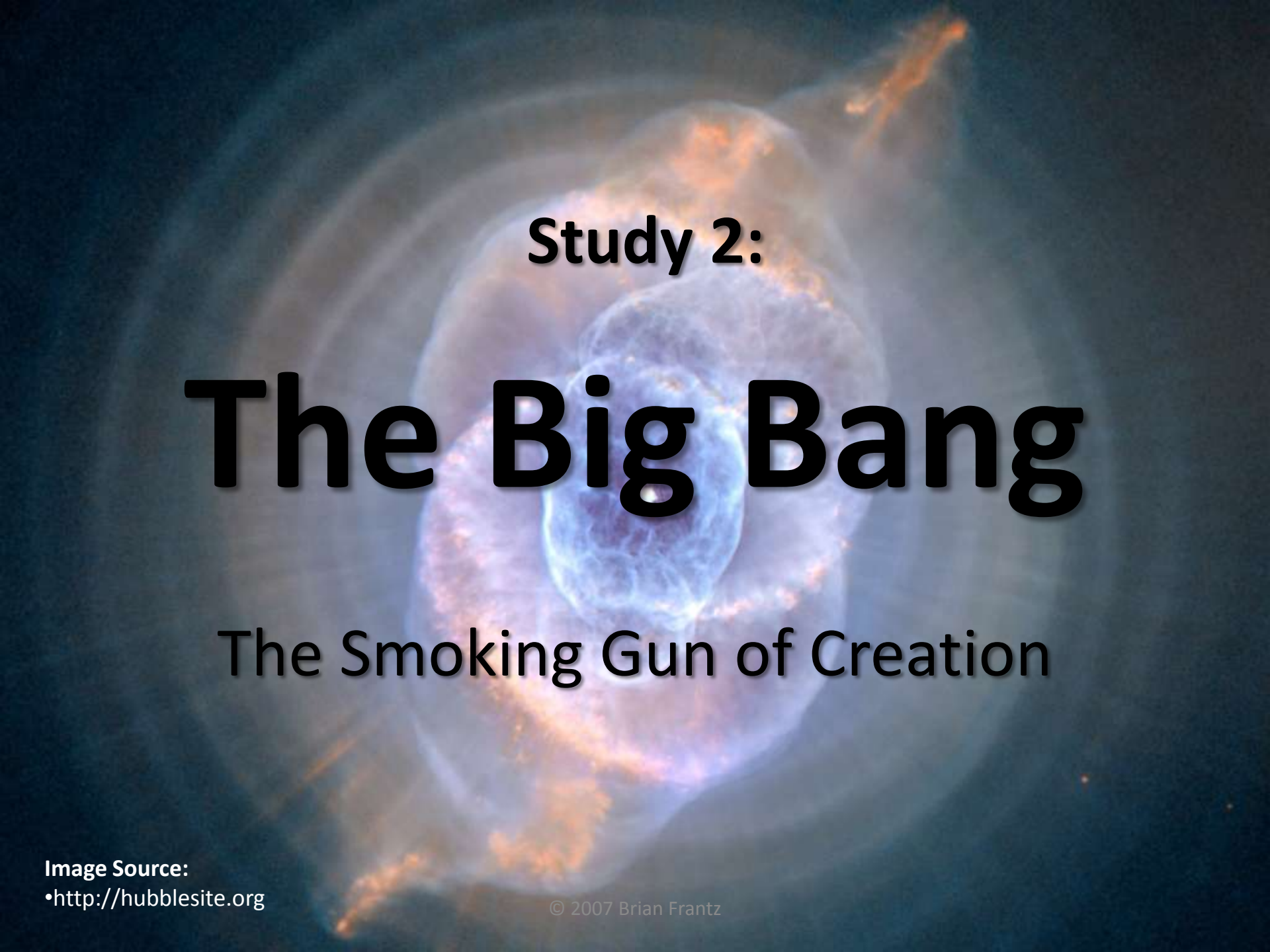


Study 2:

The Big Bang

The Smoking Gun of Creation

Image Source:
•http://hubblesite.org

The Big Bang: Biblical?

- "In the beginning God created the heavens and the earth." – Genesis 1:1 (NASV)

- The Bible focuses on what is important – that God created the universe – not on how He actually did it. So "bang, the universe began" may very well be a biblical explanation.

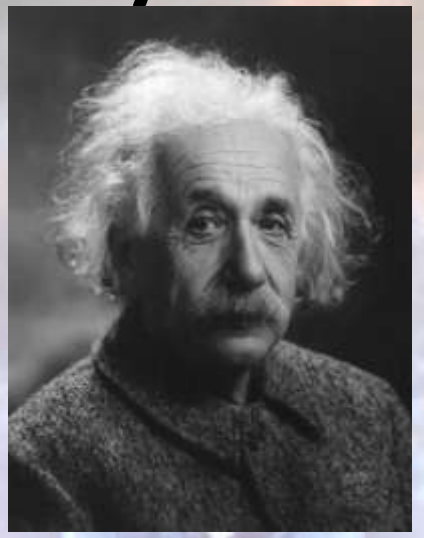
- But is the big bang really the beginning? Or is the universe itself infinite? An infinite universe would need no creator.

In the Beginning there was a Great SURGE

- From *I Don't Have Enough Faith to be an Atheist* by Norman Geisler and Frank Turek

- 5 Reasons Our Universe had a Beginning, and thus, a First Cause:
  - General Relativity
  - 2nd Law of Thermodynamics
  - Redshift
  - Cosmic Background Radiation
  - Temperature Ripples

1. Einstein's Theory of General Relativity



- Einstein's equations describe a dynamic, or changing, universe.
- Use these equations to go back far enough, and you find a space-time singularity that is literally "the beginning of time."
- This idea of an expanding universe has only been corroborated by actual evidence.

2. 2nd Law of Thermodynamics

- Entropy: “the disorder of an isolated system has a tendency to increase; the disorder will never decrease unless an external agent can cause its decrease.”[1]

- Applicable to entire universe because common understanding of universe is that it is a closed system (literally no-thing exists outside of it which could manipulate it).

- An infinite universe would have no order left. Fact that order remains in our universe despite entropy means that our universe is finite.

Source:

•[1] http://www.encarta.com

3. Redshift

- The change in wavelength of light given off by objects as they move away from our point of view.
- Edwin Hubble found that distant galaxies exhibit redshift, implying that they are moving away from us.
- Additionally, more distant galaxies have more redshift than closer ones, implying that the rate of expansion of our universe is accelerating.

4. Cosmic Background Radiation

- Arno Penzias and Robert Wilson discovered background radiation in space.
- Background radiation is energy emitted after an explosion, providing further evidence that our universe does not have a steady-state existence.
- Agnostic astronomer Robert Jastrow: "At the present time, the Big Bang has no competitors."[1]

Source:

•[1] *God and the Astronomers* by Robert Jastrow (15-16)

5. Temperature Ripples

- NASA satellite COBE found temperature ripples in space that caused matter to congregate into galaxies.
- Stephen Hawking on COBE's discovery: "the most important discovery of the century, if not all time."[1]
- Ripples so precise, COBE project leader George Smoot called them the "machining marks from the creation of the universe" and the "fingerprints of the maker."[2]

Source:

•[1] http://universe.nasa.gov/spunky.html

•[2]Quoted by Geisler and Turek in *Atheist* (83)

Summary

- Evidence suggests all matter, time and energy was once compressed into a singularity.
- Since time is included, then time also “began” with this singularity.
- Science is the study of the natural world and cannot address what happened “before” the beginning of time.

Obvious Conclusion

- Where did this singularity come from, and how were its laws of physics so perfectly calibrated?
- Since science *cannot* give us an explanation, we are logically left with a supernatural one.
- We have a word for this: God.

Naturalist Explanations (1/2)

- Material world is ordered, thus why not define it as "god" and say it is that uncaused being?[1]
  - Again, ignores the causal relationship that appears to be a law of the natural world.
  - It also ignores laws like the conservation of energy which state that we can't get something from nothing. We have something, so what gave?
  - These challenges do not apply to God, since He is supernatural and thus not bound by natural laws.

Sources:

•[1] *Dialogues Concerning Natural Religion*, ed. Norman Kemp Smith

Naturalist Explanations (2/2)

- Universe is in a constant cycle of expansion and contraction.[2]
  - String theory has been used in support of this theory.
  - However, both are completely theoretical and not likely to ever be strongly established empirically.
  - These theories still cannot explain existence.

- Hawking's "no boundary" proposal: universe is a wave function with no beginning or end.[3]
  - Again, completely theoretical and unobservable.
  - As Hawking admits, the universe still has a beginning and end in real time
  - Thus, his explanation is little more than "imaginary time," which is essentially makes it an "imaginary explanation."

Sources:

•[2] http://www.superstringtheory.com/cosmo/cosmo5.html

•[3] *A Brief History of Time,* Stephen Hawking

Quotes (1/3)

- Astrophysicist and founder of progressive creationist think tank Reasons.org Hugh Ross.
  - “Time is that dimension in which cause and effect phenomena take place. . . . If time's beginning is concurrent with the beginning of the universe, as the space-time theorem says, then the cause of the universe must be some entity operating in a time dimension completely independent of and pre-existent to the time dimension of the cosmos. This conclusion is powerfully important to our understanding of who God is and who or what God isn't. It tells us that the creator is transcendent, operating beyond the dimensional limits of the universe. It tells us that God is not the universe itself, nor is God contained within the universe.”

- Nobel Prize winning physicist Charlie Townes
  - "In my view, the question of origin seems to be left unanswered if we explore from a scientific view alone. Thus, I believe there is a need for some religious or metaphysical explanation. I believe in the concept of God and in His existence."

- Nobel Prize winning physicist Arno Penzias
  - "Astronomy leads us to a unique event, a universe which was created out of nothing, one with the very delicate balance needed to provide exactly the conditions required to permit life, and one which has an underlying (one might say 'supernatural') plan.“

- Crafoord Prize winning astronomer Allan Sandage
  - "I find it quite improbable that such order came out of chaos. There has to be some organizing principle. God to me is a mystery but is the explanation for the miracle of existence, why there is something instead of nothing.“

Quotes (2/3)

- Crafoord Prize winning astronomer Fred Hoyle
  - "A common sense interpretation of the facts suggests that a superintellect has monkeyed with physics, as well as with chemistry and biology, and that there are no blind forces worth speaking about in nature. The numbers one calculates from the facts seem to me so overwhelming as to put this conclusion almost beyond question.“

- Nobel Prize winning physicist Leon M. Lederman
  - “In the very beginning there was a void—a curious form of vacuum—a nothingness containing no space, no time, no matter, no light, no sound. Yet the laws of nature were in place, and this curious vacuum held potential. Like a giant boulder perched at the edge of a towering cliff…

    Wait a minute.

    Before the boulder falls, I should explain that I really don't know what I'm talking about. A story logically begins at the beginning. But this story is about the universe, and unfortunately there are no data for the Very Beginning. None, zero. We don't know anything about the universe until it reaches the mature age of a billionth of a trillionth of a second—that is, some very short time after creation in the Big Bang. When you read or hear anything about the birth of the universe, someone is making it up. We are in the realm of philosophy. Only God knows what happened at the Very Beginning (and so far She hasn't let on).”

- Astrophysicist Stephen Hawking
  - "Even if there is only one possible unified theory [of quantum mechanics and gravity], it is just a set of rules and equations. What is it that breathes fire into the equations and makes a universe for them to describe?"

Quotes (3/3)

- NASA physicist Robert Jastrow
  - "For the scientist who has lived by his faith in the power of reason, the story ends like a bad dream. He has scaled the mountains of ignorance; he is about to conquer the highest peak; as he pulls himself over the final rock, he is greeted by a band of theologians who have been sitting there for centuries."

- Nobel Prize winning physicist Richard Feynman
  - "Everything in physical science is a lot of protons, neutrons and electrons, while in daily life, we talk about men and history or beauty and hope. Which is nearer to God-beauty and hope or the fundamental laws? To stand at either end and to walk off that end of the pier only, hoping that out in that direction is a complete understanding, is a mistake."

- Romans 1:20 (NIV)
  - “For since the creation of the world God's invisible qualities—his eternal power and divine nature—have been clearly seen, being understood from what has been made.”