the table. Being the thoughtful individual that you are, you ask, "Does this belong to anyone?"

To which I reply, "It's been there for the last month."

Well, you'd know immediately I was wrong or lying (probably lying). Why? Because the coffee wouldn't still be hot if it had been there for a month; it would be room temperature.

That's the second law of thermodynamics in action. This law states that everything continually moves from a state of order to disorder and that heat and energy dissipate over time. This is a law that has been verified by proof after scientific proof and has never been shown to be wrong.

Now let's apply this law to the universe, just as cosmologists have. If the universe were eternal, it would have gone cold and lifeless long ago. The stars would have burned out. Planets would have broken up into clouds of dust. And even the black holes would have ceased vacuuming the universe of unsightly stars and planets.

When you see flaming suns and scorching meteors, in other words, you're looking at

a steaming cup of coffee that over infinite time would have long since gone room temperature. Since the universe is still full of pockets of heat and energy, it cannot be eternal.

Who would have thought heat would be such a helpful clue? And that's just the half of it.

THE SIGNIFICANCE OF TV INTERFERENCE

There is still another way that the measurement of heat help to prove that the universe is expanding. In the spring of 1964, two researchers at Bell Labs observed a persistent hiss while testing their microwave radiation detector. Regardless of which direction they pointed the antenna, the static was the same. (This is the same static as TV interference. The same static that was supposed to be gone when I paid $150 to have my satellite dish installed.) Those men, Arno Penzias and Robert Wilson, had discovered what scientists say is the echo from the birth of the universe.[7]

But how could scientists know for sure that the hiss they were hearing was actually an echo from the beginning of the universe? Mathematicians calculated that heat generated at the moment the universe began would have been enormous beyond comprehension. This heat would have gradually dissipated over the life of the cosmos, leaving only a tiny residual of about 3 degrees Kelvin (–270 degrees C).

Additionally, in order for galaxies to have formed, the pattern formed by the explosion needed to have slight variations in the form of waves or ripples.

According to George Smoot, these ripples would result in very slight fluctuations in the predicted temperature and would reveal an identifiable pattern.[8] Thus, if the temperatures matched up, the birth of the universe would be scientifically verified. Merely discovering the temperature to be 3 degrees Kelvin would not prove that the universe actually had a beginning; the fluctuations also needed to match.[9]

But how could we verify fluctuations so subtle?

THE GREATEST DISCOVERY OF ALL TIME?

In 1992, a team of astrophysicists led by Smoot launched the COBE satellite in order to verify the temperatures in space. The satellite would be able to take precise measurements and determine whether fluctuations in temperature existed.

The results stunned the scientific world. Not only was the three-degree temperature confirmed, but more importantly, the profiles of the fluctuations were discovered to be a match with what had been expected.[10] Hawking called the discovery "the scientific discovery of the century, if not all time." Smoot himself excitedly stated to news-

paper reporters, "What we have found is evidence for the birth of the universe."[11] He also said, "If you're religious, it's like looking at God."[12]

THE EVIDENCE HAD BEGUN TO ADD UP, AND SOME SCIENTISTS WEREN'T LIKING THE SUM.

Astounded by the news, Ted Koppel began his ABC Nightline television program with an astronomer quoting the opening of Genesis: "In the beginning God created the heavens and the earth." The other special guest, a physicist, immediately added his quote of the third Bible verse: "And God said, 'Let there be light,' and there was light".[13]

Evidence like that provided by the COBE satellite raises some intriguing questions, to say the least.

THE QUESTIONS THAT FOLLOW THE EVIDENCE

Einstein's theorems based on his theory of relativity predict that the universe could not have begun without an outside force or Beginner.[14] Since Einstein's theory of relativity ranks as the most exhaustively tested and best proven principle in physics, his conclusion is deemed correct.[15]

Tests from an array of radio telescopes at the South Pole have confirmed the big bang to a still higher degree of accuracy than ever before.[16] Background radiation measurements exceed 99.9% of what had been predicted.[17] There are now more than 30 independent confirmations that the universe had a one-time origin.[18]

New telescopes such as the infrared Spitzer Space Telescope, launched in 2003, have opened up even bigger windows to our universe. They have prompted astronomer Giovanni Fazio, from the Harvard-Smithsonian Center for Astrophysics, to remark, "We are now able for the first time to lift the cosmic veil that has blocked our view."[19]

As a result of the accumulating evidence, the scientific community has long since begun asking questions about origins, such as the following:

- What was there before the big bang?
- Why did the big bang result in a universe enabling life to exist?
- How could everything originate from nothing?

Smoot ponders what was there before the beginning: "Go back further still, beyond the moment of creation—what then? What was there before the big bang? What was there before time began?"[20]

The same astrophysicist notes that "until the late 1910s … those who didn't take Genesis literally had no reason to believe there had been a beginning."[21] The Genesis account of creation and the big bang theory both speak of everything coming from nothing. Suddenly the Bible and science agree (a discovery somewhat embarrassing to materialists). Smoot admits, "There is no doubt that a parallel exists between the big bang as an event and the Christian notion of creation from nothing."[22]

The evidence had begun to add up, and some scientists weren't liking the sum.

TRYING TO AVOID THE BAD DREAM

A beginning to the universe was like a bad dream come true for materialists who wanted to believe everything had always existed. It brought scientists face to face with the logical conclusion that a primary cause must exist. That argument is a simple logical syllogism:

1. Everything that has a beginning had a cause.
2. The universe had a beginning.
3. Therefore, the universe had a cause.

But admitting a cause leads to the next logical question: who or what is the cause?

Think about it for a minute. Since time, space, matter, and motion are all a part of the created universe, then before the beginning it was timeless, spaceless, and motionless.

What can happen spontaneously from this