WHY DOES THE UNIVERSE SEEM TO BE EXPANDING?

Dr. Walt Brown – www.creationscience.com (frequently asked question section)

At least eleven times, the Bible says that God "stretched out" or "stretches out" the heavens. [See Table 17.] For emphasis, important ideas are often repeated in the Bible. While we may have difficulty understanding all of this, we can be confident of its significance.

Table 17. Bible References to Stretching Out of the Heavens

Job 9:8	"[God] stretches out the heavens"
Ps 104:2	"stretching out heaven like a tent curtain"[1]
Is 40:22	"He ... stretches out the heavens like a curtain and spreads them out like a tent"[1]
Is 42:5	"... God the Lord, who created the heavens and stretched them out"
Is 44:24	"I, the Lord, am the maker of all things, stretching out the heavens by Myself"
Is 45:12	"It is I who made the earth and created man upon it. I stretched out the heavens with My hands"
Is 48:13	"Surely My hand founded the earth and My right hand spread out the heavens."
Is 51:13	"the Lord your Maker, Who stretched out the heavens and laid the foundations of the earth"
Jer 10:12	"He has stretched out the heavens"
Jer 51:15	"He stretched out the heavens"
Zech 12:1	"the Lord who stretches out the heavens"
The context for each of the above verses deals with creation. Were the heavens stretched out in the past, as some verses that use the past tense imply? Are the heavens being stretched out now, as other verses using the present tense state? The creation was completed in six days (Exodus 20:11), suggesting that in God's time the heavens were stretched out during the creation week, perhaps on Day 4. However, in our time, some redshifted light from extreme distances—a consequence of this stretching—is reaching us now.	

The Hebrew word for stretched is natah. It does not mean an explosion, a flinging out, or the type of stretching that encounters increasing resistance,

out of one's hand.

Expansion: Big Bang or Stretching?

The stretching explanation, proposed here, has similarities and differences with the big bang theory. Both the big bang and stretching explanations describe a very rapid expansion of the universe, beginning soon after time began, when not all laws of physics applied. As one big-bang authority states:

In its standard form, the big bang theory maintains that the universe was born about 15 billion years ago from a cosmological singularity—a state in which the temperature and density are infinitely high. Of course, one cannot really speak in physical terms about these quantities as being infinite. One usually assumes that the current laws of physics did not apply [during the big bang's rapid expansion]. ... One may wonder, What came before? If space-time did not exist then, how could everything appear from nothing? *What arose first: the universe or the laws determining its evolution? Explaining this initial singularity—where and when it all began—still remains the most intractable problem of modern cosmology.*[2] [emphasis added]

Contrary to the standard big bang theory, the expansion (or "stretching") did not begin at a singularity, an infinitesimal point.[1] Nor did energy expended in stretching out the heavens come from within the universe or during its first trillionth of a trillionth of a ten-billionth of a second (10^{-34} second) or less, as with the big bang theory. Energy flowed into the universe as the stretching progressed. According to the big bang theory, stars, galaxies, and black holes began forming after hundreds of millions of years. According to the stretching explanation, these bodies were formed (or began) near the beginning of time—during the creation week. Because matter and starlight occupy space, they were also stretched. You can decide which explanation the evidence supports.

Table 18. Comparison of Two Explanations for the Expansion of the Universe

	Big Bang	Stretching
The universe was once much smaller. It began soon after time began and before the laws of physics came into operation.[2] Energy and matter appeared out of nothing.	Yes	Yes
Expansion began at almost a mathematical point	Yes[3]	No
The initial temperature and density of	nearly infinite	finite

matter was		
Expansion energy came from within the universe	Yes	No
All expansion energy was expended	within a tiny fraction (10^{-34}) of a second	as the expansion proceeded
Stars, galaxies, and black holes	began forming after hundreds of millions of years, in an expanded universe	began before the expansion

The Evidence

Accelerating Expansion. The redshift of distant starlight suggests an expansion. However, a big bang—as in a big explosion—would produce only a decelerating expansion, not the accelerating expansion observed. [See **"Dark Thoughts"** on page 29.] Stretching during the creation week could have produced the accelerated expansion seen today at the edge of the visible universe.

Star Formation. Astronomers recognize that the densest concentrations of gas seen in the universe could not form stars by any known means, including gravitational collapse, unless that gas was thousands of times more compact than today.[4] Apparently, stars were formed as, or before, the heavens were stretched out.

Black Holes. A supermassive black hole is in the center of at least every nearby galaxy. Black holes are so massive (a few billion times that of our Sun) that nothing can escape their gravity—even light. Astronomers admit that black holes must have existed very soon after the universe began,[5] but the big bang theory says that all matter was spread out uniformly after 300,000 years, before stars formed. That uniformity would prevent gravity from forming galaxies and black holes even over the supposed age of the universe.[6] However, stars and supermassive black holes could easily have formed—or been formed—soon after the creation of the universe and matter, but just before the heavens were stretched out.

Spiral Galaxies. If spiral galaxies formed billions of years ago, the arms of spiral galaxies should be wrapped more tightly around their respective galaxies than they are. Also, nearer galaxies should show considerably more "wrap" than more distant spiral galaxies. [See Figure 141 on page 266.] However, if space was stretched out recently, spiral galaxies could appear as they do.

Heavy Elements in Stars. According to the big bang theory, there are three

generations of stars, each with increasing amounts of heavy elements. The first generation would have contained only hydrogen and helium. After hundreds of millions of years, second generation stars would begin forming with heavier elements made inside first generation stars. Although some first generation stars should still be visible, not one has ever been found. [See Endnote q on page 83.]

According to the stretching explanation, stars have always had some heavier chemical elements. Telescopes that can see the farthest back in time see stars, galaxies, and quasars containing these heavier chemical elements.

Stellar Velocities. Stars in dwarf galaxies and in the outer parts of spiral galaxies travel much faster than one would think based on physical laws. However, if only thousands of years ago those stars were nearer the centers of their galaxies before the heavens were stretched out, such high speeds would be expected.

Speeding Galaxies. A similar observation can be made about tight clusters of galaxies. Galaxies in clusters are traveling much faster than they should, based on their present distance from their clusters' centers of mass.

Dwarf Galaxies. Dwarf galaxies are sometimes imbedded in a smoothly rotating disk of hydrogen gas that is much larger than the galaxy itself. The mass (hidden or otherwise) of each dwarf galaxy and its surrounding gas is insufficient to pull the gas into its disk shape,[7] but if this matter was once highly concentrated and then the space it occupied was recently stretched out, all observed characteristics would be explained.

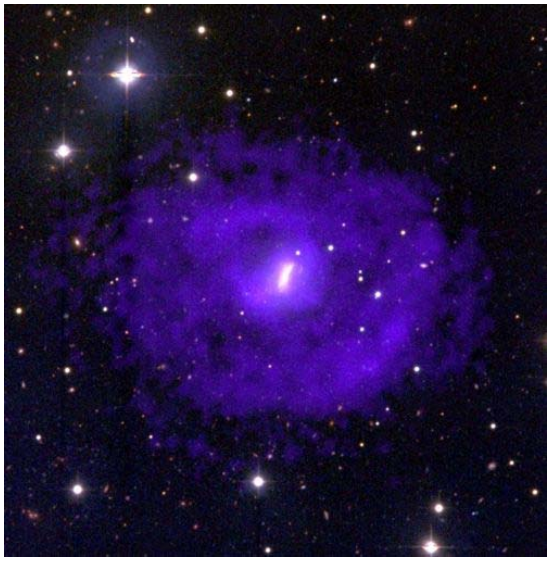

Figure 142: Dwarf Galaxy. A vast hydrogen disk (blue) surrounds the dwarf galaxy, UGC 5288 (bright white). The isolated galaxy, 16

million light-years from earth, contains about 100,000 stars and is 20 times smaller in diameter than our Milky Way Galaxy, which has at least 100,000,000,000 stars. The dwarf's mass is about 30 times too small to gravitationally hold onto the most distant hydrogen gas, so gravity could not have pulled the distant hydrogen gas into its disk. Because the gas is too evenly distributed and rotates so smoothly, it was not expelled from the galaxy or pulled out by a close encounter with another galaxy.

Hydrogen gas would have assumed this shape if space was once more compact. Gravitational forces would have been much more powerful and also would have produced this smooth rotational pattern. If so, space was later stretched out. This would have occurred recently, because the disk has not disbursed into the vacuum of space. (The galaxy is seen in visible light; the hydrogen disk is seen by a fleet of 27 radio telescopes.)

Strings of Galaxies. It is widely recognized that gravitational forces cannot contract matter into long, giant filaments composed of hundreds or thousands of galaxies—even if the universe were unbelievably old. Instead, gravity, acting over such enormous time and distances, would form more spherical globs of matter. Yet, long, massive filaments of galaxies have been discovered.[8]

These strings of galaxies can be understood if galaxies were formed when all matter in the universe was initially confined to a much smaller volume. (In that small volume, stars and galaxies formed either by the direct acts of a Creator or the powerful gravitational forces resulting from so much extremely confined mass.) Then, the heavens were rapidly stretched out. Just as one might pull taffy into long strings, the stretched out heavens might contain long, massive strings of thousands of galaxies. A surprising number appear connected or aligned with other galaxies or quasars, as prominent astronomers have noted. [See **"Connected Galaxies"** on page 37.]

Distant Galaxies. Massive galaxies and galaxy clusters are now found at such great distances that they must have formed soon after the universe began. The big bang theory cannot explain how such galaxy concentrations could have formed so quickly and so far away.[9] The expansion explanation says that galaxies and galaxy clusters began before the heavens were stretched out, when all matter was relatively confined.

Colliding Galaxies. Some galaxies contain two distinct rotating systems, as if a galaxy rotating one way collided with another rotating the opposite way. Based on the speeds of galaxies we see and their separation distances today, such mergers would take billions of years. Does this show that the universe must be billions of years old?

No. Before the heavens were stretched out, galaxies would have been much more compact and closer to each other. Their phenomenal speeds would have produced many collisions. Today, galaxies are stretched so far apart that collisions should hardly ever happen. Because galactic collisions appear surprisingly common, astronomers disregard their own calculations.[10]

If some galaxies merged over billions of years, why haven't their respective rotations homogenized by now? Obviously, the mergings happened recently.[11]

Helium-2 Nebulas. Clouds of glowing, blue gas, called helium-2 nebulas, have been set aglow by something hot enough to strip two electrons from each helium atom. No known star —"young or old"—is hot enough to do so,[12] but compressed conditions before the heavens were stretched out would do this.

Dark "Science." The big bang theory must invoke unscientific concepts, such as "dark matter" and "dark energy," to try to explain the "stretched out heavens." (Dark matter, dark energy, and many other scientific problems with the big bang theory are explained, beginning on page 28.)

Cosmic Microwave Background (CMB). The CMB is often given as evidence for the big bang theory. Actually, that radiation, when studied closely, is a strong argument against the big bang and evidence for the sudden creation of matter throughout an immense universe. [For details, see pages 274–276.]

Summary

With both the big bang and stretching explanations, it is difficult to imagine time beginning, space expanding, a brief initial period when laws of physics were not in operation, and the sudden presence of matter and energy in the universe. The big bang theory says that space expanded for a brief fraction of a second from a mathematical point—trillions of billions of times faster than the speed of light today. The stretching theory says that a smaller universe than we have today rapidly stretched out space and all that was in it, including matter and light. Although no scientific explanation can be given for the expansion or the stretching, we can see which explanation fits all the observable evidence.

We also can appreciate why at least eleven Bible passages, involving five different writers, mention the "stretched out heavens." Another verse, Psalm 19:1, takes on a new depth of meaning: "The heavens are telling of the glory of God, and their expanse is declaring the work of His hands."