

## God's Outrageous Universe

### Gravity, The Central Attraction

Our understanding of Gravity has changed and it has affected how we read the Bible.

We use the term Gravity, or talk about the "Law of Gravity" But do we know what it is?

First let's consider what's in a name? Giving something a name does not mean we know what it is, rather we know only that it exists and we can describe its attributes? Gravity is that thing that causes apples to fall from trees and keeps the moon in orbit.

Before we look at Gravity let's look at The Names of God in the Bible. A Pastor friend listed 73 names given to us by the God of the Bible and encouraged us to use them in prayer and praise. They included; Almighty, Healer, Lord of Lords, Refuge, Deliverer, Holy One, King, Lamb of God, Truth, Redeemer, Spirit of Grace, Spirit of Knowledge Spirit of Might and Spirit of Wisdom. What an amazing thing for the Creator of the universe to give us names with which to praise him. Each time God gives us a name it is a covenant with and promise to us since God reveals his eternal unchanging nature through the names he provides. Now the God of the Bible establishes that He is both Creator God Almighty (God of gods) and Jehovah God (or God who keeps his promises to his people). God goes on to reveal Himself through Jesus Christ and as Holy Spirit.

Now back to the name we have given "Gravity." God created a "good" cosmos. That is an orderly world that was fully suited to the purposes he intended. He also gave man dominion over his creation. The ability of man to name and organize God's creation and study its workings is a gift that distinguishes man from all other creatures. Gravity is essential to the order of the Cosmos, without it there would be chaos.

Now consider how our understanding the thing called Gravity has evolved through time and how it has changed our world view of reality and in changing this world view how it influences the way we read the Bible and our view of

Creation and for example our view of the location of Heaven. In Acts 1: 9 Jesus is “taken up before their very eyes” and disappears behind a cloud. As believers we would all say Jesus went into Heaven. Where did the Apostles and followers of Jesus imagine Heaven to be? Today we understand that going up is to go away from the Earth. We know that up leads out of the atmosphere, the stratosphere and eventually into empty space. Jesus clearly was not confined by gravity and we might be bold enough to deduce not confined by space-time. Jesus is in Heaven so our understanding of Heaven above and Earth below must change.

In the following we will consider ideas of Gravity or before there was such a word the idea of up and down which is tied to the experience that all things left to themselves would fall down.

Our understanding of Gravity through history has had an impact on how we viewed the Cosmos and it impacts our God’s Creation and therefore the Creator. The story illustrates the march of faith and science in the last 2000 years.\*

- The Genesis Story: (Time of Moses – 1500 to 1200 BC): God creates up and down? Genesis 1:6-10 (Heaven and sky above and earth below) Up and down is a universal experience – what we call gravity today is not even given a name it’s just is part of God’s order in creation.
- Aristotle (384-322BC): Objects move up or down according to their natural place. The Earth is the center of the universe. Heavenly motions are perfect fixed spheres. This is the first attempt to explain why we have the universal experience of up and down. Gravity is explained as all objects in the Cosmos seek their center which is the center of the Earth. This fits a geocentric view of the God’s creation as understood in the Bible. The early Roman Catholic Church and Aristotle’s science are in harmony for over 1000 years. Aristotle’s world view infuses into the Biblical view of God’s creation.
- Copernicus (1473-1543): The planets move in perfect spheres around the Sun. These perfect spheres are evidence of God’s perfection in creation and this new mathematically simpler model reveals the glory of God. It is not just the Church but creation that can tell us about God’s creation. A

threat to the Aristotelian prescription for reading the Bible. (Note that Martin Luther posted his Ninety-five theses in 1517, so the Roman Catholic Church's authority was already under attack and the protestant reformation movement continued in the 16<sup>th</sup> century.)

- Galileo (1564-1642): Through experiment and testing Galileo finds objects don't fall in proportion to their weight but all fall at the same speed. (Aristotle got it wrong for almost 2000 years). Galileo invents experimental science and put's God's creation to hypothesis and testing to understand how it works. The Galilean moons of Jupiter support the Copernican view and question the authority of the Church. Galileo is found guilty of heresy!
- Kepler (1571-1630): The perfect circles of planetary orbits are ellipses and the orbits and periods follow specific rules called Kepler's Laws. Evidence of man's understanding of "God's perfection" in design is undone. Kepler is deeply troubled, but the evidence from measurements is that the orbits of the planets are precise ellipses not circles. (Note that Kepler was a German Lutheran)
- Newton (1643-1727): There is a simple universal law of gravity and laws of force and motion that explain and predict the motion of all objects on earth and in the heavens. Kepler's Laws can be mathematically derived from Newton's laws. The clock-work universe becomes the new world view. Newton believes God is holding it all together and acting directly through the force of gravity.
- Einstein (1879-1955): Gravity only appears to be a force – it is the warping of space-time by mass. God's design is more grand and majestic but also more mysterious. The mathematics is now beyond most scientists. Einstein is told that the universe is static, unchanging so he adds the cosmological constant (an antigravity factor) to the equation, otherwise he predicts an expanding universe.
- Hubble (1889-1953) The expansion of the universe is discovered and it suggests by logical extension the universe had a beginning. Eminent Astrophysicist Sir Fred Hoyle, opposes the universe having a beginning which he describes as the "Big Bang. Einstein regrets adding the

cosmological constant to his gravity equation, known as the General Theory of Relativity.

- George Smoot (Feb 20, 1945 -) and John Mather determine the spectrum and anisotropy in the cosmic microwave background radiation – the first light from the birth of the universe. “In the Beginning” now is a scientific principle.
- Perlmutter, Schmidt and Reiss (2011 Nobel Prize in Physics) Dark Energy is expanding the universe at an increasing rate. The cosmological constant is real and Einstein was right again. There is an antigravity energy in the universe and it is the most dominant energy in the universe. We have no idea what it is so the name Dark Energy. (By Faith God is not only sustaining the universe but continues to stretch on the heavens.)

By Science – we have no idea what gravity is just better and better descriptions of its nature. But it is the central attractor of all matter (visible and dark matter) in the universe. It is just right to cause the formation of stars, galaxies, and planets. If gravity were a stronger attractor the universe would have collapsed long before life could come into existence and evolved. If gravity were weaker, stars would never have formed, elements beyond helium and lithium would not exist and again life would not exist.

By Faith - we come to see gravity as one of God’s foundations upon which heaven and earth exist. It is the central essential attractor out of which stars are born, grow old, and die to be reborn. This is the process from which heavy elements come into existence. Gravity is the reason that rocky planets are formed and circle a life sustaining Sun. It is the reason for up and down so water can condense into oceans, life can form and man has a place to stand in a garden that is “very good.”

Rollie Otto

March 18, 2012

<http://www.godsoutrageousuniverse.org/>

\*A short and understandable history of the discovery of Gravity with illustrations and picture of the key ideas and people can be found at this site: <http://www-scf.usc.edu/~kallos/gravity.htm>