What really happens in Genesis 1?

Ok. Here it is. This is what I wanted to tell you about Genesis 1. Yes, from the Bible.

Nobody thinks the first chapter of the Bible tells us how the universe and the earth actually began. Probably because no one wants it to do so. What would that mean, if the first chapter of Genesis fit perfectly with modern cosmology? What would that mean for the relativity of all religions, the truth and value of the Bible, and besides, it’s ever so much fun to argue endlessly about meanings and syntax.

Here’s how it starts.

1 In the beginning God created the
heavens and the earth.

That seems pretty simple. It is the opening of an account of the creation of everything. It says to us: get ready; we're off to hear some very important stuff.

But hosts of people think that this sentence tells us that God created everything right then and there, so that at the end of the sentence, the universe, the heavens, and the earth, have been made, though poorly, before even the first day occurs. This reading is awkward and doesn't hold up when we read further. A few verses later, God creates the "firmament," and calls it "heavens" or sky. But if the heavens (and the earth) were created in verse 1, why would he need to create the heavens in verses 6-8?

2 Now the earth was formless and empty,
darkness was over the surface of the deep,
and the Spirit of God was hovering over the
waters.

One reason that people are persuaded that the first verse is where everything is created, is that the second sentence starts out with the word for "earth." There's the word, so the earth must be there too. But what does this sentence say about the earth? It says that it is formless and void. These words are the famous "tohu" and "bohu" that theologians talk about. They point to their use in Isaiah where it refers not to the earth, but to a specific part of the earth, and these words translate there more easily as "desolate." In most other places, they translate more easily as "vacant," "empty." So why choose the less common meaning of the words, desolate and barren, for the second sentence in Genesis 1? It makes more sense to translate the words as "without shape," and "empty." If something is empty and without shape, in our physical world, it doesn't exist. Everything that exists has a shape, however odd, and also has some substance, something it is made of; unless it is a concept. If the earth had neither, at the beginning of the second sentence, the earth was not real, it did not exist – except as a thought in the mind of God.

Now if the earth did not exist, the question arises – where was this "deep" over which there was darkness, and where are these waters over which God hovered? The word for "deep" here is a word that hints at a mythical abyss, at foundational waters, not the waters which might cover a planet. We can know little about them, except that they were in God's realm before he began to create the universe. They did not exist on the earth.

So verse one tells us we are going to hear an account of creation. Before creation begins, everything is emptiness, darkness, and deepness.

Then creation begins with verse 3.

3 And God said, “Let there be light,” and
there was light.

4 God saw that the light was good, and he
separated the light from the darkness.

5 God called the light “day,” and the
darkness he called “night.” And there was
evening, and there was morning—the first
day.

For a long time I wondered why God created light first, before the sun, before the stars, and things that give light. Then I realized that, according to cosmology, light and matter were in fact created before all these other things. Genesis 1:3 got it right.

Descriptions of the big bang and the earliest contents of the universe are easily found on the internet and in laymen's books on cosmology. Anyone can see by looking at these, that Genesis 1:3-4 are Scripture's way of describing the big bang. In verse 4, God separates light from darkness. Artificial light can be turned on and off, but natural light cannot. To find darkness, it is necessary to put some form of matter in the way of the light. So when God separated light from darkness, he separated light (energy) from matter. As the universe opened, subatomic particles combined to form atoms, and the universe spread out enough that photons could burst forth, forming what we now see as the cosmic background radiation. There is no other time when light itself needed to be separated from darkness itself than at the moment of the big bang.

When matter and energy came into being, so did time. Genesis 1 indicates this with the words "and there was evening, and there was morning—the first day." The oscillation of day and night is still a standard mark of the passage of time. Continuing in this manner, each day of Genesis 1 contains phrases about evening and morning and the number of the day. This assures us that these are not simply a collection of creative acts, but that these acts were done in a specific order.

The question of the *amount* of time spent by God in creating the universe is a matter of great contention. We deal with this question later.

6 And God said, “Let there be a
vault between the waters to separate
water from water.”

7 So God made the vault and separated
the water under the vault from the water
above it. And it was so.

8 God called the vault “sky.” And there was
evening, and there was morning—the
second day.

Day 2

In verses 6-8 God made the "vault." The Hebrew word translated "vault" is *raqia*, which is defined as an extension, a reacch, like beaten out metal. Those who are certain that Genesis 1 is based on Babylonian myth, or at best, is told in terms of the ancient view of the heavens, stress that *raqia* must mean something that is solid. The ancients believed that the sky was the inside of an enormous bowl that was inverted over the earth. Did God, on the second day, create an enormous bowl? This is fine, perhaps, for the original audience of Genesis 1, but for us, it lacks thought and imagination. God knew when he wrote Genesis 1, that as the millennia went on, his maturing audience would have telescopes and calculating machines, and would see that there was no bowl over the earth. But he knew the words in the text could stretch their meanings enough to describe what in fact he did create on the second day. He created space. It is space that separates waters from waters, heavenly bodies from heavenly bodies. Stars, and planets, are made largely of hydrogen which is the greater part of water – 2 atoms of hydrogen with one atom of oxygen. And after God made the *raqia*, he called it "sky." When we look into the sky, we see space and the heavenly bodies. In the daytime, we cannot see beyond our atmosphere because of scattered light. But if we could, we would see the darkness of space and the sun shining out at us. At night we do see the blackness of space and those heavenly bodies that are visible from our position in that space. It is clearly this space that was created on the second day. But how can a word like *raqia* represent the emptiness of space?

Part of the solution is to realize that empty space is not empty. It is filled with the fields of various particles, light waves, radio waves, electron fields, magnetic fields, and with virtual particles coming in and out of existence. Space is not empty. It has been beaten out by the mysterious force that expands the universe. From its beginning, space has been pushed steadily outward by

this force from its starting point. This fits the definition of *raqia* as something beaten out. And yet because light can penetrate space, we know that space is also thin. Space is an extension of the original universe, beaten out into thinness.

This spreading out explains how God created the heavenly bodies. When a room is cluttered and we must make space, we need to place the objects in the room closer together. If we sweep up dust that is lying on the floor, we sweep it into piles so as to leave the rest of the floor clear. In the same way, as God, by the use of gravity, swept up the hydrogen that was spread across the universe, it formed into clumps that grew bigger and bigger due to the increasing gravity accumulating within the aggregations of hydrogen, until the inward pressure of gravity caused the hydrogen to become intensely hot. This produced stars, and later, planets. We can see that the earth is created on the second day, by the reference to the "waters below," and the "waters above." On the first day, there is no mention of the earth, we have only light and matter. In space there is no "up" or "down," no "above" or "below." But these words become relevant on the second day, indicating that a planet, the earth, is now our location. On the second day, God created the heavenly bodies. This means that the earth, the sun, moon, and stars were created on the second day along with the space that separates them.

9 And God said, “Let the water under the
sky be gathered to one place, and let dry
ground appear.” And it was so. 10 God
called the dry ground “land,” and the
gathered waters he called “seas.” And
God saw that it was good.

11 Then God said, “Let the land produce
vegetation: seed-bearing plants and trees
on the land that bear fruit with seed in it,
according to their various kinds.” And it was
so. 12 The land produced vegetation: plants
bearing seed according to their kinds and
trees bearing fruit with seed in it according
to their kinds. And God saw that it was
good. 13 And there was evening, and there
was morning—the third day.

Day 3

In Genesis 1:9, dry land and seas are made. God calls for dry land to appear.

As it happens, the earth was at one time covered with water, but some part of the earth's crust was lighter than the rest of it, and this part rose until it was above the oceans, about 3 billion years ago. (See: When earth's continents rose above its oceans: https://earthsky.org/earth/when-earths-continents-rose-above-its-oceans/ referenced 2-13-24)

The phrase "gathered into one place" implies that there was only one sea and one continent. This is actually how the earth's surface developed. One large continent later broke up into many smaller ones, and then they slowly moved back together again. This happened a number of times due to plate tectonics. There is no need for this detail (the sea gathered into one place) to be included in Genesis, but it is there.

Land and seas would seem enough for one day, but on day three, something else is created as well. God says, "Let the land produce vegetation…" He specifies that these plants should produce more plants that are "according to their kinds." There are two details here that favor the implication that God used evolution in his creation of life.

First, he does not say "let there be plants," in the way he created space and light. Instead he tells the *land* to produce plant life.

Second, he instructs that these plants will produce offspring that are of their own kind. The offspring is not to be like its parent, but like its kind. The fact that offspring have small variations from their parents is what allows evolution to occur. Those small variations are meaningless unless they provide a better life for the offspring. When this happens, the next generation is likely to carry on this variation. Over great lengths of time these

variations add up, allowing living forms to change enough to survive in new environments.

It is significant that land and plant life are created on the same day. As archeologists have searched ever further back in the fossil record, they have found that life began at about the same time that land first appeared above the waters. Genesis 1 told us this a long time ago.

14 And God said, “Let there be lights in the
vault of the sky to separate the day from
the night, and let them serve as signs to
mark sacred times, and days and years, 15
and let them be lights in the vault of the sky
to give light on the earth.” And it was so. 16
God made two great lights—the greater
light to govern the day and the lesser light
to govern the night. He also made the stars.
17 God set them in the vault of the sky to
give light on the earth, 18 to govern the day
and the night, and to separate light from
darkness. And God saw that it was good. 19
And there was evening, and there was
morning—the fourth day.

Day 4

On the fourth day, lights appear in the earth's sky. In verse 16 it says that God made two great lights, but the word for "make" is not the word for "create" found in verse one. The word in verse 16 means to make in the ordinary sense, to make out of something existing, to produce. In this case the meaning that works is to *make* appear. God made the sun, moon, and stars appear.

The earth began with an atmosphere that had a lot of carbon dioxide, an atmosphere that held a lot of water. This was a good atmosphere for bacteria and plants to grow in, but it would have been cloudy and murky. As bacteria kept growing, they produced oxygen until the atmosphere began to clear. Finally, enough oxygen made it possible to see the heavenly bodies.

20 And God said, “Let the water teem with
living creatures, and let birds fly above the
earth across the vault of the sky.” 21 So God
created the great creatures of the sea and
every living thing with which the water
teems and that moves about in it,
according to their kinds, and every winged
bird according to its kind. And God saw
that it was good. 22 God blessed them and
said, “Be fruitful and increase in number
and fill the water in the seas, and let the
birds increase on the earth.” 23 And there
was evening, and there was morning—the
fifth day.

Day 5

This is the Cambrian Explosion. This is perhaps the clearest description in Genesis 1 of a period in the geological record. Its place on the time scale is further evidenced by the creation of "the flying things." Most Bibles translate this as "birds," but the Hebrew word here is a word that means things that fly, and is used elsewhere in the Bible to mean insects. Insects do fly; and very large dragon flies are found in the fossil record at the end of the Cambrian.

It is not likely that old men telling stories around the campfire would think of flying insects being made at this point, but it is there in the fossil record, and in Genesis 1.

24 And God said, “Let the land produce
living creatures according to their kinds: the
livestock, the creatures that move along
the ground, and the wild animals, each
according to its kind.” And it was so. 25 God
made the wild animals according to their
kinds, the livestock according to their kinds,
and all the creatures that move along the
ground according to their kinds. And God
saw that it was good.

26 Then God said, “Let us make mankind in
our image, in our likeness, so that they may
rule over the fish in the sea and the birds in
the sky, over the livestock and all the wild
animals, and over all the creatures that
move along the ground.”

27 So God created mankind in his own
image,

in the image of God he created them;

male and female, he created them.

28 God blessed them and said to them, “Be
fruitful and increase in number; fill the earth
and subdue it. Rule over the fish in the sea
and the birds in the sky and over every
living creature that moves on the ground.”

29 Then God said, “I give you every seed-
bearing plant on the face of the whole
earth and every tree that has fruit with seed
in it. They will be yours for food. 30 And to all
the beasts of the earth and all the birds in
the sky and all the creatures that move
along the ground—everything that has the
breath of life in it—I give every green plant
for food.” And it was so.

31 God saw all that he had made, and it
was very good. And there was evening,
and there was morning—the sixth day.

Day 6

On the sixth day life appears on land. After the Cambrian, at about 375 million years ago, we find the first evidence of tetrapods on land. As with all the other days, this day's events come in the same order in the creation account that we find them in natural history – life as soon as land appears, plant life before animal, life in water before life on land. Genesis 1 lists many kinds of land animals; and on this day, humans are also made. The creation of humans is not like the creation of the animals, but humankind is made specifically, and in the image of God. On the seventh day, God rested from his acts of creation.

Now for the problem of time…

For those living after Albert Einstein, time should not pose a problem. We now know that time does not proceed at the same rate in all locations. The rate at which time proceeds depends on the speed at which one is going, and on the strength of the gravitational field one is experiencing. These are real effects and not just theoretical. Both effects are included in the equations that make our satellite GPS work.

Normally we do not concern ourselves with the rate of time. For ordinary purposes, it makes so small a difference that we do not need to consider it. For this reason, even those of us who are familiar with the fact, dismiss it from our minds in daily life. But when we are talking about the beginning of the universe and the time spans that involves, we should expect that time's peculiarities may be relevant. A person standing at the edge of the universe when it was only half as large as it is now, would

experience an enormous gravitational pull, the total gravitation of the entire universe held within a relatively small volume. This would cause an enormous change in the rate of time compared to what we experience today. Days would pass incredibly slowly. Might one day from this perspective equal 13.7 billion years from our current perspective? It very well may.

And why would God speak to us in terms of his view of time as his creation unfolded and not in terms of our view now in the Holocene Era? We have to realize that this is *his* account of *his* actions. He is eternal, and the small planet and the small time period we inhabit are not his environment. He may have reasons to record things as he sees them. The ancients who first heard this account would have had no way of understanding billions of years, but could easily understand six days. The part of his audience living today has gained enough understanding of the universe to understand the variability of time, and to figure out that a day from one point of view is longer or shorter than a day from another. Using days as the unit of time, in a text that must last several thousands of years of humans' growing understanding, is the better choice.

As the universe expanded, a person at the edge of it would experience steadily less gravity, due to the fact that this point would be moving farther away from the center of the universe. This would cause the progress of time to increase until it became the same as our current perception.

If the growth formula is used, we can approximate the length of each creation day by breaking up the 13.7 billion years of the history of the universe into six steadily diminishing periods of time. When this is done, the beginning of each period comes at the time when God's actions on the corresponding day match the main developments in that period of natural history. In other words, natural history broken up into six periods, each one approximately half as long as the previous one, matches the six days of creation in Genesis 1; (1)the creation of light and matter,

(2) the spreading out of space and the formation of heavenly bodies, (3) the appearance of the continents and the beginning of life on earth, (4)the appearance of oxygen and the clearing of the atmosphere, (5) animal life in water, and (6) animal life on land.

What does this mean?

Modern readers of Genesis 1 don't like to speak of miracles. It's unscientific. But something bigger than science is at work here, and we need to face it. Is the Bible a scientific book? By no means. It is richer than that. It contains human history, human drama, historical epics, prophetic pleadings, guides for behavior in ancient times, stories of God's struggle to keep one group of people separated and worshipping him so as to form a cultural touchstone by which he could communicate with humans. Today people are tossing the Bible away as an antiquated book used by moronic people to live a stunted and ridiculous life style. This is to throw away a precious stone, of untold value, because its color is out of style. Might this new understanding of Genesis 1 bring people to a new appreciation of this ancient treasure?

On the other hand, there are some who love the Bible, and in all the confusion about science and biblical interpretation, have come to mistrust science so much that they don't want to hear that science corroborates any part of the biblical text. Science is too changeable they claim, and the big bang theory may be replaced by something else. While science does change with changing observations, most of science is a large body of knowledge based on previous observations, and this does not change much at all. We are not likely to read the news one day and find that there is no such thing as gravity, even though we now understand it differently. The same formulas apply today that Newton devised to describe the orbits of the planets. Newton's understanding of gravity took us to the moon. The big bang theory rests on many observations; observations that cannot be unseen. The galaxies

are indeed moving away from each other at a high rate of speed. The cosmic background radiation is at the temperature that physicists calculated it would have to be if the big bang had occurred. We may find new details to add to the big bang as we explore more of the universe, but we will not find that the universe isn't expanding. So we need not fear that if the Bible describes the big bang that it will be proved wrong by later developments.

Recognizing that Genesis 1 is consistent with the big bang and natural history is not just a citation of a passage of Scripture that strangely fits with later knowledge. Small congruences are not necessarily significant. But Genesis 1 is an entire, detailed account of a long period of history, a history its human writers could not have known. It requires us to recognize that this chapter of the Bible has been written with supernatural assistance. There is no way a person or group of people in ancient times could have simply guessed all the many details that are consistent with what we know today.

Nor is it likely that a piece of writing could so well satisfy those who held the ancient view of the heavens and at the same time describe what a modern audience now knows. This kind of writing is a work of art of a special kind. These are works of art that appear to be either of two things depending on the viewer's understanding. As examples, there is the young woman vs. the old woman, there is the rabbit vs. the duck, there is the lady sitting at her vanity table vs. a scull. But in Genesis 1 we see the ancient view give way to something that the original human writer could not have known. There is really no way to explain this without accepting something outside anything we currently understand.

Many of the observations in this essay about the surprising correspondence of Genesis 1 with the modern understanding of the history of our planet have been seen and written about by others. The most notable of these is Hugh Ross, who created the

website Reasons.org. His take on the opening moments of the universe is different from those presented here, but his reading of Scripture's supporting references is quite thorough. He wrote a book review filled with arguments supporting concordism (the interpretation of Scripture that concords with modern science) as a thoroughly appropriate means of interpretation—a proposition that is widely and incorrectly disputed. Portions of his review are attached.

Soli Deo Gloria