Increasing Urantia Book Plausibility

Predictions and Physiologies

by Geoffrey L. Taylor

Introduction:

For my mid-life crisis, I had dismissed mainstream Christianity and the bible as unscientific and contradictory. I would have dismissed *The Urantia Book* (*UB*) as well, if it were not introduced to me by a well-respected person, Dr. Irwin Ginsburgh, a PhD physicist with 45 patents, (by contrast I only have 33). I would have dismissed the book as metaphysical mumbo jumbo. Irv suggested starting with Paper 42 and the dominoes were falling until it had rekindled my Anglican childhood and reestablish my life's purpose. Its cosmology and science seemed plausible, and the internal consistency was amazing. By 1987 I was fully on board and Irwin, and I coauthored a paper looking at 31 scientific predictions or specific assertions. In the interests of enticing more skeptical scientists to take a serious look at *The Urantia Book*, I am revisiting and updating those predictions and statements to see if there is further convergence and to propose further physiological convergences that might relate science and spiritual influences. This may be just my increasing ability to find plausible coherences between science, sentience and spirit but, just like the woman who touched Jesus's garment, as a scientist I need plausible mechanisms for spirit energies to interact with my material energies. Over the 37 years there's been a 30 percent increase in the plausibility of predictions.

Irwin moved his investigations to the mansion worlds many years ago, so I am now flying solo here. I don't have the same depth of understanding that Irwin had, and I may be more liberal in my search for correlations than he was, but even with that caveat, I think you will agree that the science of the UB is increasingly converging, rather than diverging from current scientific thinking. What makes these predictions unique is that we can compare a specific set of predictions over time. Bear in mind that there are many, many other scientific and cosmological assertions in the *UB* that are not covered herein; I leave those for other investigators.

As an individual, I was able to give *The Urantia Book* credibility for its spiritual content. *The Urantia Book* can be accepted on faith along with the application of reason and philosophic curiosity but as a scientist, inventor and technologist, I had to be convinced that it did not purport bad science, disprovable math, or illogical assertions that ran counter to physical evidence.

The scope of science in the book is huge, ranging through biology, physics, astronomy, and geology, to many other fields of natural science. The places where the book differs from today's theories cannot always be easily tested but the assertions in the text should at least be plausible. Having said that, one should not use science to validate or invalidate *The Urantia Book*. The spiritual and philosophical content should stand on its own and is the primary measure of its true value. If we can describe plausible physiological processes for spiritual receptivity, soul growth and an afterlife, we might be able to add further scientific credibility to the *UB,* especially at that critical first reading. As we will demonstrate in this paper, there appears to be real science behind mindal and spiritual energies and how they interact with us.

Scientific Coherences

The Urantia Book was first published in 1955, reliable historical sources make it clear that by 1945 it was "fixed" (fully proofread) and by 1946 the final versions of the first edition plates were in the vault of the printer in Chicago, ready to produce 10,000 copies. For the purposes of this essay, I will hold to that 1946.

We're told in the book that theories evolve as science matures and "crystallizes" (UB: 132:3.3). I now can

report that the advancing theories in all the scientific disciplines, because they increasingly match what the *UB* states, are generally leading me to believe more wholeheartedly in the plausibility of the science in *The Urantia Book*.

Looking back, we now know that the scientific information in the book generally agreed with the science of the day; in fact, much of the book seems to parrot the most advanced science of those times (as shown nicely by Mathew Block's work). On the other hand, some of it differed markedly from the scientific theories of 1935. One of Block's findings in this connection is interesting: the celestial authors of the text omitted the errors of those human scientific authors from whom they were lifting and sifting quotes from the available science texts of that era, as one part of its policy of harvesting of human sources.

As we proceed in this discussion, let's keep these quotes in mind in thinking about the science of the *UB*:

"The scientist, as such, is limited to the discovery of the relatedness of material facts. Technically, he has no right to assert that he is either materialist or idealist, for in so doing he has assumed to forsake the attitude of a true scientist since any and all such assertions of attitude are the very essence of philosophy." 132:1.2

"Scientists may someday measure the energy, or force manifestations, of gravitation, light, and electricity, but these same scientists can never (scientifically) tell you what these universe phenomena *are.* Science deals with physical-energy activities; religion deals with eternal values. True philosophy grows out of the wisdom which does its best to correlate these quantitative and qualitative observations. There always exists the danger that the purely physical scientist may become afflicted with mathematical pride and statistical egotism, not to mention spiritual blindness." 133:5.4

Limitations of Disclosure and Terminology

The Urantia Book warns of the limitations on transmitting scientific ideas in a revelatory context. For example, in dealing with the future of scientific discovery, the terms that will be used in the future (and the precise definitions of these terms) are of course not known, and this may hinder clarity. For example, the book discusses "continental drift" on the earth's surface, while science today talks only of "plate tectonics." Also, today's physicists use the term "meson" instead of the word "mesotron" used by the revelators.

In addition, the book clearly states that there is a time limitation on the information that can be presented. They proclaim that they "can't anticipate the discoveries a thousand years." Further, they make clear that correlations between their statements and current science will be possible, but they make clear that such revelatory scientific information is provided in the text only if we will soon be able to prove this fact or theory ourselves. The converse also seems to be true: they are permitted to share plenty of information about ideas or facts we could never humanly discover on our own (e.g., the unique concepts of the *ultimaton* and *segregata*, for instance).

All that said, here are the 31 items from the 1987 paper that we will now have a second look at:

1. Healing chemicals for wounds
2. Plate tectonics or continental drift
3. Source of the sun's energy
4. Temperature at center of sun
5. Major Energy of Space
6. Creation of the sun
7. Location of Seven Superuniverses in the Grand Universe
8. Creation of the Earth and moon
9. Chemical element with atomic number 101
10. Neutrino particle
11. Mass of the meson particle

12. Creation of matter and energy
13. Creation of our solar system
14. Life implanted on Earth 550 million years ago
15. End of Cretaceous age
16. Breakup of fifth planet from the sun (asteroids)
17. Dark islands in the universe
18. Organization of matter in a superuniverse
19. Use of DNA for human evolution
20. Reduced gravity effect on calcium ion
21. Reduced gravity effect on unattached, and uncharged electronic-energy particles
22. Origin of the sunspot cycle
23. Twelve planets in our solar system
24. Cause of wave action of light
25. Speeds greater than the speed of light
26. Two kinds of gravity
27. Antigravity
28. Unknown form of energy
29. Ultimaton particle
30. Neanderthal to Cro-Magnon transition
31. Life Span of an Ordinary Star

Let's update each of these assertions and predictions. (Note that I list the scientific category or categories and the pertinent section in the *UB* for each item):

1. Healing chemicals for wounds (medicine, biology; 65:4.3-5)

The Urantia Book briefly describes the natural process by which an injured cell can heal itself by eliciting from its neighboring cells "the secretion of certain substances which facilitate healing processes in the wound." It further states that these healing chemicals for wounds will later be understood by our scientists. At the time of its writing, chemicals that fight infection and thereby speed up the healing process were indeed in the process of being discovered. Penicillin was discovered in 1928, but serious work on its properties did not start until ten years later; *sulfa drugs* (synthetic antimicrobial agents) were discovered in 1935 but didn't come into use until five years later. These substances may or may not relate to the healing chemicals the *UB* refers to that involve the cells themselves, but I am giving this one thumbs up as these drugs emulate the cells' own healing process. I should add that the book also hints at other discoveries of this type that will be made in the future. (See 65:4.3.) Recent advances in the areas of connective and soft tissue diseases and damage have led to vascularization and collagen-enhancing drugs to promote healing at the cellular level and we now have numerous immune-system stimulants and suppressants drugs, and my personal favorite: the cancer-killing chemical known as *3 bromopyruvate* which works at the mitochondria level of the cells.

2. Plate tectonics or continental drift (geology, geophysics; 58:5)

Perhaps one of the most notable scientific claims of the *UB* that was proven after its publication is its teaching that the continents drift slowly over the surface of the Earth. This general thesis had been proposed in the early years of the twentieth century, but by 1935 no significant evidence for the drift of the continents had been found. While it is true that a look at the shape of the east coast of South America and the west coast of Africa readily shows the ancient fit between these two land masses, science requires material proof. Such proof only came in 1969 by matching subsurface earth layers on the two continents, along with the discovery of ocean floor cracks between the continents. These trenches at the bottom of the oceans generate the energy that propagates the slow movement of the plates on either side in opposing directions. We give this a "yes" for a valid prediction, there is one remaining discrepancy: the book states that the drift started about 700 million

years ago, while it was recently computed by geologists to have begun 200 million years ago, based on the oldest ocean rocks that have been found at the bottom of the Atlantic Ocean.

3. Source of the sun's energy (physics, astrophysics; 41:8.1–2)

The book says that the sun generates energy by fusing four hydrogen atoms to form one helium atom, using carbon as a catalyst. This process, known as nuclear fusion, is a form of mass-to-energy conversion that liberates huge amounts of energy in the form of heat and luminosity. Physicists worked out this understanding of the sun's energy conversion process about the time the Urantia Papers were finalized.

4. Temperature at the center of the sun (physics, astrophysics; 41:7.2)

The *UB* states that the temperature at the center of the sun is 35 million degrees Fahrenheit. In the mid-1930s, science had only guessed at a temperature of millions of degrees, but an estimate of 29 million degrees was made in the late 1930s. Today we have an accurate and reliable measurement because of the work of the Solar and Helio spheric Observatory (SOHO) satellite, which was first launched in 1995 and has ever since been orbiting the sun. The SOHO reading is 28 million Fahrenheit, not too far from the claim of the Urantia text.

Side note: While we are talking about predictions involving the Sun:

Density of the sun (physics; 41:4)

The Urantia Book says "The mass of your sun is slightly greater than the estimate of your physicists, who reckoned it as about 2 octillion (2×10^{27}) tons." The current SOHO data puts the sun's mass at 2.2×10^{27} tons. This latest measurement by the SOHO satellite corroborates the claim made in the *UB* in 1935.

Surface temperature of the sun (stellar physics, 41:7)

The book says that the surface temperature of the sun is "almost 6,000 degrees" Fahrenheit. Today's science measures the temperature as 9,941 degrees Fahrenheit. But it should be noted that there is contention as to what exactly is the "surface" of the sun. Science has identified five principal zones: the temperature minimum region, the chromosphere, the transition region, the corona, and the heliosphere. The chromosphere, transition region, and corona are much hotter than the surface of the Sun. The coolest layer of the Sun is the temperature minimum region about 500 km above the photosphere, with a temperature of about 4,100 K or 6,900 F

5. Major Energy of Space (Physics, 41:9)

The book said that science did not know about energy pervading space in 1935. This energy apparently flows through space in circuits. It could be referring to the strong nuclear force which science now knows about, and which is involved in the conversion of mass to energy in the stars. It could also suggest that the rope analogy of energy associations is real.

6. Creation of the sun (cosmology, stellar physics; 57:1, 5:7.5.1)

The book says that the sun originated from an enormous cloud of dust and gas known as the Andronover nebula, which disappeared long ago. Whereas science dates the universe as less about 14 billion years old, the *UB* states that the universe is far older, claiming for instance that the Andronover nebula that gave birth to our sun has undergone about 800 billion years of development. As this mother nebula contracted by the force of gravity, the book says that it threw off over a million suns, a fact unknown to current science; also unique to the *UB* is the idea that our sun originated toward the far end of this epic process of "sun disgorgement." Both science and the *UB* agree that the sun is of origin from a nebula and that, having been ejected, heated itself because of gas compression due to gravity until the sun attained nuclear fusion status. This basic description of

our sun's origin generally agrees with current science—except for the timing of nebular evolution that the Urantia text says preceded it, where there is of course a great discrepancy. The *UB* also says the sun's creation occurred about 6 billion years ago, whereas science puts it at 5 billion. We will give the book's assertions about the birth of the sun the designation of "possible" because science still has a distance to go to understand the age of the universe.

7. Location of Seven Superuniverses in the Grand Universe (Astronomy, 15:0.2 , 15:0.3)

The book describes the seven superuniverses circling around Havona in a planar elliptical course. It also says that science has almost found superuniverse number seven and will find the rest soon. In 1935, science thought that all the galaxies were uniformly distributed throughout space. The existence of large voids between galaxies and the clustering of galaxies have only recently been discovered however the current structure is filamentary. If speed and distance measurements are flawed (by some of the Big Bang assumptions) the current filamentary structure may show more potential for this organization. It is interesting to note that a Fourier or Möbius transformation T1(z)=1zT1(z)=1z turns a filament into the circle (time, speed, distance) transform, turns a filament into a cluster. A couple of important notes here is that the organization is primarily administrative and the we are now seeing movements of whole sections of the observable universe. If we also consider that these measurements are based on the fundament assumption of the big bang and we replace that with space respiration (as Steven Hawkins noted that an alternate solution is that the universe has always been in existence). The Big bang is under pressure currently as it does not allow enough time for the formation of large black holes. As Forbes Magazine reported in July 2018 "Gravitation hasn't had enough time to pull matter into large enough clumps to have stars and galaxies….The Universe was so hot you couldn't form neutral atoms and then where even when matter-antimatter pairs spontaneously formed, individual protons and neutrons would be dissociated into quarks and gluons…..A Universe filled with energy inherent to space itself, causes a rapid, exponential expansion, that stretches the Universe flat, gives it the same properties everywhere, with small-amplitude quantum fluctuations, that get stretched to all scales (even super-horizon ones) and then inflation comes to an end."

8. Creation of the Earth and moon (astronomy, 57:6-7)

The book says that the earth and the moon coalesced as a pair of twin planets after the giant Angona nebula came close to the sun and pulled away enough material to form all the planets. (For further background, see item 12 below.) At first, the earth was about a tenth of its current size—at around 2.5 billion years ago. Thereupon, the *UB* states, the sun and the moon both grew by "meteoric accretion," but the earth grew faster compared to the moon. It further states that the earth had in this manner become two-thirds of its present size by 1.5 billion years ago, and then became its present size about a billion years ago. By contrast, current science has a somewhat different origin theory: It says that the Earth and the moon condensed at the same time and that the Earth picked up a relatively much smaller amount of material by accretion of meteors and "planetesimals" (large meteors). We give this one prediction a "possible" because we can't yet rule out new discoveries to come that may validate the *UB*'s assertions.

9. Chemical element with atomic number 101 (nuclear physics; 42:7.4-7)

The book says that, if it existed in theory, a very heavy element that would be classed as number 101 on the atomic chart would be so unstable that it would disintegrate radioactively almost instantaneously. (The atomic number of an element is based on the structure and electric charge of the atomic nucleus and the number of electrons present). In 1935, the heaviest naturally occurring element known was Uranium—at number 92—and it disintegrates slowly. Experiments to make heavier elements were done in the late 1930s, but with little success, and certainly not up to number 101. But such a feat was finally accomplished in 1955. This man-made element was labeled *Mendelevium*, and it turned out to be stable for 1.17 hours—which is instantaneous, relatively speaking. The following quote from the *UB* provides background on this issue: "The local universes are of decimal construction. There are just one hundred distinguishable atomic materializations of space-energy

in a dual universe; that is the maximum possible organization of matter in [our local universe]. . . . When one hundred and one [electrons] have been artificially introduced into [an atom's] orbital field, the result has always been the instantaneous disruption of the central proton with the wild dispersion of the electrons and other liberated energies." (See 42:7.4-7)

10. Neutrino particle (nuclear physics; 41:8.3, 42:8.5)

In its explanation of stellar collapse, the book mentions a small, unnamed, and chargeless particle that could be the particle that science calls the *neutrino*. The particle was theoretically predicted in 1931 and was labeled the neutrino at that time, but because it was so difficult to detect, it was not found until 1953 (some would set the date to 1959). The *UB* also states that these particles have mass, but only in 1998 did our scientists discover that neutrinos have mass. Current nuclear physics calls the radioactive emission of neutrinos by the phrase *beta decay*. Here is how the *UB* introduces this particle: "The gravity-electric changes give origin to vast quantities of tiny particles devoid of electric potential, and such particles readily escape from the solar interior, thus bringing about the collapse of a gigantic sun within a few days." Science has just this year discovered the highest energy neutrinos at 220 PeV (220 x 10^{15} electron volts).

11. Mass of the meson particle (nuclear physics, 42:8)

The *UB* has interesting things to say about atomic cohesion, such as in this passage: "The integrity of the nucleus is maintained by the reciprocal cohering function of the mesotron, which is able to hold charged and uncharged particles together." The book uses here the term *mesotron* instead of the presently used word *meson*; the mesotron term was used in the 1930's when the early theoretical work was done on this particle, and the presenters of the *UB* were evidently familiar with this research. Can we relate mesons and quarks? Mesons and quarks have a close relationship in the subatomic world. Quarks are fundamental particles that come in six types (or "flavors"): up, down, charm, strange, top, and bottom. Mesons are composite particles made up of one quark and one antiquark. They are part of a larger family of particles known as hadrons, which are particles made of quarks. Mesons play a crucial role in mediating the strong force between protons and neutrons in atomic nuclei. So, in essence, mesons are formed by the combination of quarks, making them intimately related. Quarks are the building blocks, and mesons are one of the structures that result from putting those blocks together. The book claims the mesotron has a mass that is 180 times the mass of the electron. The mass of an electron is current thought to be approximately 0.511 MeV/c^2 and the mass of a charged meson is approximately 139.6 MeV/c^2 so the mass of a charged pion (meson) is about 273 times the mass of an electron. This prediction is still a ways off unless you bring in some unique combination of quarks.

12. Creation of matter and energy (cosmology, physics; 3:4.2, 4:1.5, 42:1)

The concept of *space potency*, which is unique to the Urantia text, can be defined as "universe force-space potential" (42:2.3). The *UB* states that matter and energy can be continuously brought into space-time manifestation, a process which requires in part the presence of specialized and ubiquitous beings generally known as "force organizers." As noted, the book also teaches that the physical universe came into being hundreds of billions of years ago—while science offers instead the Big Bang theory, which states that all energy originated about fourteen billion years ago in an instant and in one place. According to Big Bang thinking, this primal explosion has been spreading out ever since and has greatly evolved in complexity, resulting in the entire present universe. The *red shift* phenomenon is the main driver for today's theory; by contrast, we can assert that the notion of *space respiration*, as suggested by *The Urantia Book*, provides a satisfactory explanation of the red shift. (The term "red shift" refers to how light changes as objects in space, such as stars or galaxies, recede from us.) In general, we can say that there is not much harmony of the *UB* with science on these points. But it is worth noting in this connection that in October 2017, the proton and the anti-proton were found (by CERN) to have identical magnetic properties. This profound finding (if verified) plus other matter/anti-matter conundrums of current physics as well as the time required to form supermassive black holes, could make scientists rethink

the Big Bang. Interesting to note that Stephen Hawking before his death stated that infinity lifespan of energy also explains the big bang.

13. Creation of our solar system (cosmology, 57:5)

In the 1930s, one of science's proposed theories of the origin of our solar system was that a massive body had come close to the sun and pulled out huge amounts of matter that later coalesced to form the planets. *The Urantia Book* offers a similar depiction of the creation of *Monmatia*, which is its coined name for the solar system. It states that an "enormous system [called] Angona" (that was noted earlier to be unknown to today's astronomy) came close to the sun and tore away lots of matter that coalesced to form the planets. Significantly, the *UB* also tells us that "The planets do not swing around the sun in the equatorial plane of their solar mother. . . . Rather, they travel in the plane of the Angona solar extrusion, which existed at a considerable angle to the plane of the sun's equator." (57:5.12) The *UB* offers this account to explain the seven-degree tilt of the sun's axis to the plane of the planets. Today's best scientific theory puts the age of our solar system at 4.5 billion years (as opposed the *UB*'s age of five billion) and suggests that the planets were created by the coalescence of matter adjacent to the sun at the same time the sun coalesced; most of the collapsing mass collected in the center, forming the sun, while the rest flattened into a protoplanetary disk out of which the planets, moons, asteroids, and other small Solar System bodies evolved. This theory of origin does not explain the tilt, but instead relies on the so-called *giant-impact hypothesis* (a great collision that created the moon) to account for the tilt. At this point, we don't have a compelling reason to rule out the book's teachings on this subject, so we give this a "possible" designation.

14. Life implanted on Earth 550 million years ago (paleontology, 58:4)

The book says that life was implanted on Urantia 550 million years ago by specialized beings known as *Life Carriers*, but it does not specify exactly what was implanted. It states, "[We] initiated the original life patterns of this world and planted them in the hospitable waters of the realm. All planetary life. . . had its origin in our three original, identical, and simultaneous marine-life implantations." (58:4.2) According to science, life, abiogenesis, started 4 billion years ago as single-cell life, cyanobacteria which reproduced by asexual, cell fission. The formation of the ozone layer preceded the Cambrian era and then 541 million years ago, in the so-called "Cambrian explosion" there was a sudden rise in oxygen in the oceans (2% to 12%) and a sudden shift from single celled organisms dependent on continuous sunlight, to complex animal life with the equivalent of DNA. This allowed for more complex life forms (chloroplasts) to evolve, which could exist on land and in the shade. This was accompanied by the first evidence of sexual reproduction, chromosomes and DNA. If we consider the DNA RNA to protein process (the passing on of information from generation to generation) to be basis for what we called 'life" then Science and the Urantia Book agree here.

15. End of the Cretaceous Age: 65 million years ago (geology, 61:2.5-6)

Science had conclusively determined that all of the dinosaurs and many other classes of life, or about three-quarters of the plant and animal species on the planet, went extinct about 65 million years ago. The event (called the Chicxulub impact or the Cretaceous-Paleogene mass extinction) marked the termination of the Cretaceous Period. The *UB*, by contrast, states that the Cretaceous closed 50 million years ago and that the dinosaurs slowly died out by about 35 million years ago. Today, science is considering three competing theories for the great mass extinction 65 million years ago:

1. A 4-to-9-mile-wide meteor struck the Earth creating a long-lasting dust cloud that blocked out sunlight worldwide. This event had a catastrophic effect on plant growth and thus on most other living species, and is known as the Alvarez hypothesis. The very likely location of such a meteor strike is near the Yucatan Peninsula in Mexico, at Chicxulub.
2. Climate change dropped the temperature of the Earth, killing many plants and consequently the dinosaurs.

3. Massive volcanic activity caused the demise of the dinosaurs, as *The Urantia Book* and other early sources have stated.

The crucial clue in this discussion is the presence of a high concentration of the heavy element, *iridium*, that can be observed worldwide in the boundary layer of deposits at the end of the Cretaceous, which was first observed in 1980 by the Nobel prize-winning physicist Luis Alvarez and his geologist son, Walter Alvarez. Iridium is rare at the Earth's surface; it is mainly found deep in the Earth. It is plausible that the anomalous iridium layer could have been caused by either volcanic activity or an asteroid strike. In 2016, a scientific team that was drilled deep into the peak ring of the Chicxulub impact crater to obtain rock core samples from the impact itself. The discoveries made were widely seen as confirming the Alvarez hypothesis. Nonetheless, Yale University and others in the last decade have confirmed that "the Deccan Traps erupted in several pulses over 700,000 years, a period that overlaps with the Chicxulub impact. Because the volcanoes were erupting during the extinction event, scientists have wondered if they played a part in killing the animals. The Deccan Traps could have affected life 66 million years ago in two major ways. On shorter timescales, sulfur dioxide released by the volcanoes could have cooled the planet and fostered acid rain, throwing Earth's oceans—and broader chemical cycles—into disarray. Over time, the vast amount of CO2 released in the eruptions could have led to steady warming, potentially stressing global ecosystems."

16. Breakup of the fifth planet from the sun (astronomy, cosmology, 57:6.6)

Our solar system has an asteroid belt located between the orbits of Mars and Jupiter. The book offers an apparently original theory of how large bodies of planetary matter can be disrupted, stating: "If space bodies are similar in size and density, collisions may occur. But if two space bodies of similar density are relatively unequal in size, then, if the smaller progressively approaches the larger, the disruption of the smaller body will occur when the radius of its orbit becomes less than two and one-half times the radius of the larger body." It then goes on to say that the original fifth planet from the sun underwent such a process when it was slowly attracted by the superior gravity of the giant sixth planet, Jupiter. "The fifth planet of the solar system of long, long ago," says the *UB*, "traversed an irregular orbit, periodically making closer and closer approach to Jupiter until it entered the critical zone of gravity-tidal disruption, was swiftly fragmentized, and became the present-day cluster of asteroids." A similar theory was also proposed by early German astronomer Heinrich Olbers in 1802, but has since been set aside because most astronomers now believe that the breaking up a planet in this manner would require an enormous amount of energy. Current astronomy also thinks that, in addition, the low density of the asteroid belt (less than four percent of the mass of the moon) and the differing elemental make up of these asteroids suggest that they are just pieces of space matter ("planetesimals") that never coalesced to form a planet. Nevertheless, we can't entirely rule out the book's assertions on this question, so we give this one a "possible" rating.

17. Dark islands in the universe (astronomy, 15:6.11, 41:3.6)

The book introduces the unique phrase "dark islands of space," and predicts that we will discover them soon. We have since discovered these bodies—they are called "black holes"—and it turns out that these amazing objects have the same set of characteristics offered in the *UB*, along with many others. Stephen Hawking is credited with creating the first robust theory of black holes in the 1970s. Hawking and the rest of today's cosmologists, if they were to read the *UB*, may also agree with this additional description of these dark islands: "[In some stars]. . . this process of cooling and contraction may continue to the limiting and critical explosion point of ultimatonic condensation." We now realize that most galaxies have a massive black hole at the center that controls the shape of the galaxy and other factors. Interestingly, the *UB* seems to corroborate this finding: "The density of some of these large masses is well-nigh unbelievable. And this great concentration of mass enables these dark islands to function as powerful balance wheels, holding large neighboring systems in effective leash." (15:6.11) Along with our discovery of black holes, we now realize that they are not anomalous entities, but essential features of the cosmos, just as the *UB* teaches. But only a small fraction of the universe is actually visible—a mystery not broached in the *UB*. It is worth noting also that the only criteria for identifying a

"dark island" are that a certain mass be packed within a certain radius. A mass that collapses to a volume smaller than its so-called event horizon meets science's criterion for being a black hole. Cygnus X1, the first-discovered black hole, has a mass of 15 solar masses; our Milky Way galaxy has a black hole 26,000 light years away towards Sagittarius that weighs in at 4.1 solar masses.

Note: General relativity (GR only focuses on gravity) and quantum field theory (QFT focuses three non-gravitational forces, weak, strong, electromagnetic of small scale and low mass) are mutually incompatible in regions of extremely small-scale and high mass, such as those that exist within a black hole or during the beginning stages of the universe.

18. Organization of matter in a superuniverse (astronomy, 15:3)

The book is unique in describing the existence of *seven superuniverses* containing trillions of inhabited material planets rotating in an orderly way around a stable universal center. Science has largely accomplished the mapping of the visible universe, but there does not appear to be any segmentation that approaches this precise description. In addition, the *UB* describes what it calls *outer space levels* that extend vastly beyond the seven superuniverses, which complicates this notion of galactic groupings further. At the moment, this crucial feature of Urantia cosmology does not find much support in current astronomy, but we can't yet rule it out. There remains the possibility that the Milky Way itself could include the seven superuniverses. It is difficult to image the matter within the Mily Way galaxy but as we develop better techniques of seeing through its density we are seeing more precisely what may eventually look like seven arms.

19. Use of DNA to evolve the human species (genetics, 65:3)

The book states that the human species will no longer evolve genetically by natural means and suggests that we now become active participants in conscious evolution: "Mankind on Urantia must solve its problems of mortal development with the human stocks it has—no more races will evolve from pre-human sources throughout all future time. But this fact does not preclude the possibility of the attainment of vastly higher levels of human development through the intelligent fostering of the evolutionary potentials still resident in the mortal races." (65:3.6) Scientific knowledge of genetics has long been used to improve numerous species, including the cloning of species, but the idea of human eugenics, once soundly rejected, is now seeing considerable acceptance especially for the cures of gene specific diseases. We have mapped the entire human genome and now understand much about how genes function. We are now discovering the mechanisms of *epigenetics*—which provide proof that human behavior can modify gene expression in present and future generations. We are just now starting to "edit" gene segments in people using CRISPR: Clustered Regularly Interspaced Short Palindromic Repeats which is a family of DNA sequencing tools (Cas9: is a protein that cuts DNA, gRNA: Guide RNA that is a short strand of RNA that targets a specific DNA sequence, sgRNA: Single-guide RNA that is a synthetic RNA molecule that combines crRNA and tracrRNA into one molecule, crRNA: CRISPR RNA that is part of the guide RNA that recognizes the target sequence, tracrRNA: Trans-activating CRISPR RNA that is part of the guide RNA that binds the enzyme as well as: dCas9: Dead Cas9 that is a modified Cas9 protein that binds to DNA but doesn't cut it and PAM: Protospacer-Adjacent Motif which is a short DNA sequence that follows the targeted DNA region.) Advances in genetics and epigenetics are becoming Urantia's alternative to eugenics—at least until the advent of higher beings on our world who would be qualified to carry out eugenic programs. This assertion in the *UB* truly merits a "yes."

20. Reduced gravity effect on calcium ion (physics, 41:6)

The book states that calcium ions are able "ride the light beams [of the sun] for varied distances," and suggests that this accounts for the higher concentration of calcium atoms on the sun's surface, as well as their very high concentration in space. But why do they bother to tell us that? "Our whole superuniverse is sprinkled with minutely pulverized stone [that] is literally the basic building matter for the planets . . . . [This tiny material] consists for the most part of the modified atoms of calcium." (41:6.2) The *UB* says further that the calcium ion

possesses these characteristics because of the way it achieves reduced gravity: by "tossing [its] nineteenth electron back and forth between its own orbit and that of its lost companion more than twenty-five thousand times a second." This allows them to ride the beams of stars so that they pervade all space. "Calcium is, in fact, the chief element of the matter-permeation of space," we are told. Calcium atoms usually have two outermost electrons that are electrically balanced. But at very high temperatures, one of the negatively charged electrons can be removed resulting in a positively charged ionic form. Today these ions are called *cosmogenic isotopes of Ca* (the symbol for calcium). In 1997, it was observed that calcium isotopes are lighter than the solutions from which they precipitate, and it is also known that calcium isotopes can demonstrate some variable gravity ability. Also when calcium ions in space are radiated, the absorption of radiant emission from the sun, like the Ca II K absorption lines, can change. This change is sensitive to local magnetic fields, with stronger fields resulting in less absorption (brighter features) and weaker fields leading to more absorption (darker features). This light/dark asymmetry might act like a solar sail.

21. Reduced gravity effect on unattached, and uncharged electronic-energy particles (physics, 42:6)

"Local or linear gravity becomes fully operative with the appearance of the atomic organization of matter," we are told. But the book goes on to say that "no measurable linear-gravity pull is exerted on free, uncharged, unattached electronic-energy particles." We can rightly assume that this description refers to *gluons*, which were first observed in 1979 using the PETRA collider and may also be related to the Higgs boson.

22. Origin of the sunspot cycle (astronomy; 41:4, 57:5)

The book says that our eleven-year sunspot cycle is a slow remnant of the shorter variable phase of the sun, which was once 3.5 years. Such variability is called the *Cepheid phase* of a star, which is the cyclic variation of the brightness of the star. The *UB* puts it this way: "Your own sun still carries a diminishing legacy of the mighty up swellings of its younger days, but the period has lengthened from the former three and one-half day pulsations to the present eleven and one-half year sunspot cycles." (41:3.9) SOHO has confirmed the eleven-year periodicity of our sun and its findings indicate that the cycle is determined by magnetic variation. While science has not confirmed the *UB*'s claim of an earlier variability of 3.5 years, this assertion of the *UB*'s authors is at least plausible.

23. Twelve planets in our solar system (astronomy, 57:5)

The Urantia Book counts twelve planets in Monmatia, while science has counted only nine planets until recently, when it was decided that Pluto is too small to be counted among the local family of planets. But if we were to include all the "dwarf planets"—Pluto, Haumea, Makemake, and Eris (Kuiper Belt objects)—the total actually is 12. However, a recent ninth official planet has been proposed to account for the asymmetry of the other planet's orbits. So, the *UB*'s claim is in the realm of possibility.

24. Cause of the wave action of light (physics, 41:5.7)

The book says that light does not travel in waves but rather proceeds in "direct lines," implying that light is made up of particles. Further, it states that if a secondary energy impinges on the original stream of light, then it "appears to travel in wavy formation." One such secondary energy, says the *UB*, is present in space regions but has yet to be discovered. However, a recent article in the *European Physical Journal* suggests that the vacuum of space contains "particle pairs such as electron-positron or quark-anti-quark" that affect the speed of light and presumably may be responsible for its wave-particle nature. Research by Nigel Nunn, a trained physicist who is a *Urantia Book* student, is showing some real promise in making this one more plausible. It could be that the wave ripples of a photon do not protrude into the adjacent Higgs field. Larger ripples would interfere with the Higgs field and show properties of mass. It is also interesting to note that light can be slowed down and made to appear to have mass.

25. Speeds greater than the speed of light (physics, theology, 23:3)

We're told in the *UB* that very high beings known as *Solitary Messengers* are available for "quick transmission of important and urgent messages" at a speed of 841,621,642,000 miles per second. Very recently, science has demonstrated superluminal communication with the propagation of information. In the summer of 2011, researchers involved in a small neutrino experiment in Europe called OPERA (Oscillation Project with Emulsion Racking Apparatus) made the announcement that they had clocked neutrinos travelling just a few fractions of a second faster than the speed of light. This may in fact be an error but it seems that current scientists believe that the so-called Lorentz-violating variants of quantum gravity might allow faster-than-light neutrinos. There is also science suggesting that light signals have a "bow wave" which is a precursor to the arrival of the light and implies that it travels faster that the beam itself. Perhaps most important, in 1964 physicist John Stewart Bell introduced Bell's Theorem, which upended the idea that no physical effects in the universe can move faster than the speed of light. The theory states that *quantum entanglement* can occur wherein a pair of photons emitted from the same source, but moving in opposite directions, can experience simultaneous shifts in polarization which implies some form of instantaneous communication between them. Bell's experiment has been replicated numerous times. This important theorem has given rise to the theory of "quantum nonlocality," which some say is supported in the Urantia text. All told, it would appear that speeds greater than the speed of light are indeed possible.

26. Two kinds of gravity (Physics, 11:8)

The book indicates that there are two kinds of gravity: *linear gravity* and *Paradise gravity*. "Absolute gravity is Paradise gravity. Local or linear gravity pertains to the electrical stage of energy or matter; it operates . . . wherever suitable materialization has taken place." (11:8.3) Science is familiar with the gravitational attraction between two physical bodies, but it does not understand the fundamentals of how gravity works. Physicists have conducted experiments to see if linear gravity affects light energy and have confirmed that it does; however, to date there is no evidence of Paradise gravity. It is however, possible that the *Higgs Field* could be considered a precursor to linear gravity and that, in the same sense, Paradise gravity may also be a precursor to linear gravity. (The Higgs field is a field of energy that is thought to exist in every region of the universe. The field is accompanied by a fundamental particle known as the Higgs boson, which is used by the field to continuously interact with other particles, such as the electron.) So, we can plausibly say that discovery of Paradise gravity may one day be possible. Another possible explanation of this could be the John Wheeler differentiation "Space-time tell matter how to move. Matter tells space time how to curve."

27. Antigravity (physics, 9:3)

We are taught in the Urantia text that "the Infinite Spirit possesses a unique and amazing power—*antigravity*, [which is] the ability to withstand the pull of material gravity. . . . Antigravity can annul gravity within a local frame; it does so by the exercise of equal force presence." (9:3.2) We are also taught in the book that some particles (e.g., a single ultimaton) can be affected by antigravity and that antigravity is available to the Conjoint Actor (i.e., the Third Person of the Trinity) for the purpose of "slowing down energy to the point of materialization." This ability is also delegated to "power-control creatures" whose work "has to do with the regulation and stabilization of physical energies." (9:3.6) It is also interesting to note that scientists can now slow down light, which implies that someday we may be able to slow down gravity. Perhaps most important is that some scientists now believe that dark energy exhibits antigravity effects, and because of that finding I will rate the *UB*'s assertions about antigravity as generally agreeing with current science. It should be mentioned that many so-called frontier scientists are working in the field known as *electrogravitics*, which claims to have demonstrated antigravity effects in propulsion systems.

28. Unknown form of energy (physics, 42:1.3)

The book says that "there is innate in matter and present in universal space a form of energy not know on Urantia." It also states that matter and energy are just different manifestations of the same thing, which of course is also described in Einstein's equation, $E=mc^2$. Although scientists knew about nuclear fusion in 1920, nuclear fission was not discovered until 1938. So, we can state that this prediction is a "yes."

29. The ultimaton particle (physics, 42:6.4)

The book is unique in that it introduces a fundamental particle known as the *ultimaton*. We are told that the ultimaton is the first particle with mass that energy can be converted to. One hundred ultimatons make up an electron, which is probably a result of the fact that "ultimatons function by mutual attraction." It could be the case that what current science calls *gluons* (which is a vector-gauge boson like the photon) are the same thing as ultimatons. Gluons act as the strong interaction force between quarks, and quarks are thought to be the constituent parts of neutrons and protons. Nigel Nunn's work (see reference below) may also help here. although we talk about the electron as being more of a "cloud" so this gets a plausible.

30. Neanderthal to Cro-Magnon transition (anthropology, 8:1)

The book says that the descendants of Adam and Eve, known as the *Andites*, engaged in warfare and crossbred with indigenous peoples to create modern European races, while at the same time wiping out the aboriginal group known as the Neanderthals. Science is aware that there was a rapid change from Neanderthal types of humans to Cro-Magnon (i.e., modern man) about 35,000 years ago. But science does not know how this happened so quickly, since natural evolution cannot account for such a quick transformation. So, we'll have to call this one a "no"—not enough scientific support yet but Nature magazine reported that genetically some unknown highly advanced genes made their way into the Denisovans Neanderthal genome about 30,000 to 50,000 years ago. https://www.nature.com/news/mystery-humans-spiced-up-ancients-sex-lives-1.14196

As a side note, this topic became Irvin's personal introduction to *The Urantia Book*. He had proposed that Adam and Eve were extraterrestrials who had been preceded by earlier humans in his book *First Man. Then Adam!* (Simon & Schuster, 1977). Thereupon some of his readers introduced him to the *UB*.

31. Life Span of an Ordinary Star (Stellar Physics, 15:6, 41:8-9)

The book says that an ordinary star, like our sun, can shine for billions of years. Science agrees, also calculating that stars can generate enough energy to shine for billions of years. But the book adds something unknown to current science, stating that stars that are in the mainstream of "space energy flow" can acquire more energy and shine indefinitely. *The Urantia Book* also claims star life of trillions of years. Current science even agrees that a few trillion years is possible. See this one is a "yes."

Conclusions:

Here is our final tally in 2024. Those assertions or predictions that turned out to agree with current science get a "yes." Those that still contradict today's science get a "no." The remainder merit a "possible" rating, meaning that these items are at least plausible.

Healing chemicals for wounds. YES
Plate tectonics or continental drift. YES
Source of the sun's energy. Possible
Temperature at center of sun. YES (Up from NO)
Major Energy of Space. Possible (Up from No)
Location of Seven Superuniverses in the Grand Universe. POSSIBLE (Up from No)
Chemical element with atomic number 101. YES
Neutrino particle. YES

Mass of the meson particle. POSSIBLE (Up from NO)
Creation of the Earth and the moon. POSSIBLE
Creation of matter and energy. POSSIBLE (Up from NO)
Creation of our solar system. POSSIBLE
Life implanted on Earth 550 million years ago. POSSIBLE
End of Cretaceous age. YES
Breakup of the fifth planet from the sun (asteroids). POSSIBLE (Up from NO)
Dark matter in the universe. YES (Up from POSSIBLE)
Organization of matter in a superuniverses. POSSIBLE
Location of Seven Superuniverses in the Grand Universe POSSIBLE
Use of DNA for human evolution. YES (Up from POSSIBLE)
Reduced gravity effect on calcium ion. YES (Up from NO)
Reduced gravity effect on free neutron particles. YES (Up from NO)
Origin of sunspot cycle. POSSIBLE
Twelve planets in our solar system. POSSIBLE
Cause of wave action of light. NO
Speeds greater than speed of light. YES
Two kinds of gravity. POSSIBLE
Anti-gravity. YES (Up from NO)
Unknown form of Energy. YES (Up from POSSIBLE)
Ultimaton. NO
Neanderthal to Cro-Magnon transition. NO
Life span of a star. YES (Up from NO)

Summary: Out of the 31:

14 yes (Urantia Book's assertions agree with current science)
12 possibly (Urantia Book's assertions predictive and scientifically plausible)
5 don't agree

Ratio of those items that agree or are plausible/possible to the total of 31:
1987 - 19/31 = 61.3 percent
2017 - 26/31 = 83.8 percent
2025 - 28/31 = 90.3 percent

Predictions to Physiology Transition:

It was credible science that intrigued me to read *The Urantia Book*, and now having read the book for 40 years and following the science controversies, I realize that the book cannot be proven or disproven by its science. The real value is in the book's spiritual and philosophic guidance and not whether science currently agrees. Having settled in my mind that science was moving in the right direction, i.e. one of increasing alignment, I wondered about the more esoteric complemental natures of science and spirit. The UB delineates exquisite balance everything physical and spiritual. There is balance in everything from ultimatons to the "goldilocks numbers", from bosons to beatitudes.

"The universe is not like the laws, mechanisms, and the uniformities which the scientist discovers, and which he comes to regard as science, but rather like the curious, thinking, choosing, creative, combining, and discriminating *scientist* who thus observes universe phenomena and classifies the mathematical facts inherent in the mechanistic phases of the material side of creation." (195.7:22)

“The scientist, not science, perceives the reality of an evolving and advancing universe of energy and matter.” (195.7:23)