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The URANTIA Book and Modern Scientific Opinion

Imagine for a moment that we are back in the year 1950. that we are fresh science graduates with majors in physics and astronomy, and someone has given us a paper to evaluate from a set called the URANTIA Papers. We are told that this set of papers has been circulating since the mid-thirties and that it contains a beautiful account of the life of Jesus. that it represents perhaps the most magnificent piece of religious literature that the world has yet seen, and that it lays claim to being a new revelation. The Papers contain a cosmology and a history of our Earth and this is the reason why we have been asked to give an opinion. We commence our reading at a section that tells us of the circumstances surrounding the birth of our planetary system.

The first thing we read is that about 4.5 billion years ago, the Angona system was approaching our sun. that at its centre there was a dark giant of space. solid, highly charged, and possessing enormous gravity pull that resulted in a large segment being torn out from the sun which eventually gave rise to our planets, asteroids and meteorites. But have we not just learned about the meticulous measurements of Edwin Hubble on the cepheid variable stars of the Andromeda system. together with his meticulous measurements of the red shift for far away stars that have now permitted our astronomers to calculate that our universe can be shown to be just 2 billion years old. How then can our planetary system have formed 4.5 billion years ago?

We look through the paper, find a few other items that do not comply with what we have been taught, and so we feel forced to conclude that no matter how good the religious aspects of these papers may be, their claims to be a revelation cannot be sustained any more so than other such claims put forward by weird religious groups.

The years pass by, and in 1960, we are again given the papers, this time in book form. We get the same glowing report on the religious aspects of The URANTIA Book, and we remember that we dismissed it previously because it claimed that the solar system formed 4.5 billion years ago. In the meantime the minimum age for the universe has been revised upwards. first to 5 billion years because of an error found in Hubble's measurements, and now there is much talk that perhaps it is considerably older. We go back to the same section, and this time we re-read the part about the centre of the Angona system, a dark giant of space, solid, highly charged, and having enormous gravity pull. Whoever has heard of such an outlandish object? It sounds like one of those fantasies of the theoretical physicists, either a neutron star, a thimble-full of which is supposed to weigh 100 million tons, (could anybody believe that nonsense!), or perhaps somebody has dragged up Laplace's fantasy, an extraordinarily massive dark body of gravitational intensity such that not even light can escape, and infinitely

more dense than even a neutron star. So we shut the book, and classify it along with the host of other strange books that lay claim to origins from beyond this world.

Another ten years pass. It is 1970, the age of the universe has now gone up to perhaps 10 or 11 billion years, mysterious stellar objects named pulsars and quasars have been discovered, and a source of radio waves and x-rays at the centre of the Crab nebula is now acknowledged to be, of all things, a neutron star! Laplace's dark body has been renamed a black hole, but this is still a play toy for theoretical physicists, and not taken too seriously by astronomers. Our copy of The URANTIA Book has been gathering dust on our bookshelf but we take it down to have another a look at the Angona system bit, and read "highly charged dark body with enormous gravity pull". Well, there is definitely no hard evidence that black holes even exist, and whoever heard of a highly charged black hole anyhow. So back to the bookshelf goes The URANTIA Book where at least it is useful as a bookend.

Another 10 years later, it is 1980. The first contender for black hole status was identified back in 1972. The universe is now thought to be 15 to 18 billion years old, and radio-isotope dating of meteorite material is said to show that the age of the solar system is about 4.6 billion years which is about the same age as that Urantia Book article had stated. However, we have still not heard of a charged black hole. Another look at the Book and we find something that helps us to ignore it once more. The Book says it took best part of three billion years for the Earth to attain its final size and all the text books on cosmology tell us that the planets stabilized at their present size only a few hundred million years after the solar system first formed. So back to the bookshelf with it.

In June of 1988 we happen to pick up our most recent copy of Scientific American, and in it we find an article about an elegant computer modeling of a highly charged black hole that is claimed to provide an explanation for the enormous power output of quasars. Now that jogs our memory a little, and so out with the Book once more, and this time we find that almost everything that was said about Angona that seemed utterly unbelievable in 1950, now coincides with up to date scientific knowledge and theory.

Well there is still a lot in that book that is not in line with current thought, as well as a lot of crazy stuff about invisible men, and giant talking birds that run an international airline. But it so happens that at morning coffee break we talk with a friend whose strong point is geology, and he tells us that he had a similar experience with The URANTIA Book as he followed the section that spoke about continental drift. He tells us that The URANTIA Book version was quite incredible when first published, and that it has taken until about the 1980's for it to line up with current scientific opinion. Then, coincidence of coincidences, a colleague who had been listening to our conversation chimes in with his experience about the section on the forces holding the atomic nucleus together, and he tells us that what the Book had stated about the strong and the weak nuclear forces back in 1934 was originally science fiction material but that it also had finally lined up with scientific opinion by 1983.

The URANTIA Book tells us that Jesus often used parables to get his point across to his disciples, but invariably, he would make them figure out their own interpretation of the parable. So I am in good company when I leave you to figure out what that parable was all about. So now let us get on with talking about some of the crazy bits in the Book such as these invisible midwayer characters.

Albert Einstein was undoubtedly the outstanding scientific genius of this century. However Einstein was always skeptical about the now famous, and virtually unchallengable, quantum theory which to his death-bed he maintained was incomplete. He spent the latter part of his life in a vain effort to formulate a unified theory that would unite all the forces of nature. Quantum theory has enjoyed enormous success over the last 50 years in predicting phenomena that have later been verified experimentally, thus conferring great confidence in its correctness. Quantum theorists pursuing Einstein's dream, enjoyed spectacular success in uniting electromagnetic and weak field theory, and then attempted to produce a grand unified theory that would include the strong force that stabilises the atomic nucleus, and with some success. However all such theories have come to grief in attempting to include gravity. That is, all but one, a theory going under the name of Superstring Theory and also known in a derogatory manner as the theory of practically everything. However, despite the fact that it has detractors, the claim of its proponents is probably true when they state that it is the only possible remaining hope that physicists have to fulfill Einstein's dream of a unified theory.

Superstring theory has a very serious fault as, at the moment, it is virtually untestable simply because the energy levels required to test it's predictions are presently unattainable. The reason that Superstring theory is of interest to URANTIA Book readers is that it brings modern particle physics several steps closer to some of the statements to be found in The URANTIA Book.

Prior to Superstring, one of the more successful theories was called GUT, standing for Grand Unified Theory. This started off with quarks, leptons and Yang-Mills particles as being the fundamental particles of nature, but wound up with a minimum of 48 different fundamental particles to describe the known forms of matter. Physicists like to think that the universe is considerably simpler than that, hence the majority opinion is that GUT cannot be dealing with fundamentals. One more problem is that as soon as GUT tried to include gravity, it immediately came to grief. In fact, all theories that assume that the fundamental units of nature are point particles have come to similar grief, they become far too complex, and they all fail when they try to unify gravity with the other three forces.

String theory from which Superstring theory developed, takes a different tack. It considers a string rather than a point to be the fundamental unit of matter, and it uses the vibratory modes of open and closed strings to describe the sub-atomic structure of matter. Presently the most favoured version contains only closed strings, and postulates a 10 dimensional universe. A closed string is simply a tiny vibrating string joined at its two ends. All of the amazing number of particles to be found in nature are formed from this one simple unit. Besides the variability introduced by different modes of vibration, strings can open, form longer strings and re-close.

Another parameter that introduces variation is called spin. At its simplest level spin is just a tiny, spinning string. As I understand it, it is closure of a string that brings about gravitational interaction.

If we examine The URANTIA Book statements on the fundamentals of matter, we are confronted with the ultimaton, which is also the sole unit from which all other matter forms are constructed. So here, Superstring theory and the ultimaton are together, for recall that the minimum number of fundamental particles in GUT was 48. Let us remember too, that the URANTIA Papers date to pre-1935, to a time when the electron, the proton and the neutron were considered to be fundamental particles, and, at that time, to propose that all forms of matter were derived from a single fundamental unit would have been seen to be unnecessary, unlikely, and without any experimental or theoretical foundation. At the time of publication of The URANTIA Book in 1955, literally hundreds of what might be fundamental particles had been discovered, and to propose that all these hundreds of particles could be derived from a single entity would have seemed almost ludicrous.

Another feature that the ultimaton and the Superstring theory have in common is spin. The URANTIA Book tells us that the revolutionary velocity of the ultimaton can have profound effects on the behavior of matter. The next thing to notice is that the bare ultimaton has no interaction with linear gravity, and only when it associates with other ultimatons is there a gravity interaction. The simplest string unit, an open string, also does not interact with gravity. There are other points of similarity, but there is also one difference that may or may not be important. A string is a string, and The URANTIA Book describes the ultimaton as a sphere. However a string of pearls is still a string. Alternatively, a closed string (circle) that spins about its diameter forms a sphere, so maybe there is no real conflict. Be that as it may, the interesting thing for URANTIA Book readers is the fact that the enormous gap that previously existed between The URANTIA Book version of the fundamental nature of energy-matter, and that of our most advanced scientific theories is inexorably converging as time goes by.

There is another aspect of Superstring theory that is of great interest to we URANTIA Book readers, but before coming to it, let us diverge and take a look at a problem that is causing much consternation in astronomical circles. It appears that the recent detailed observations made with radio, infra red, optical, and X-ray telescopes have indicated that up to 90% of matter in the universe may be in some 'dark' form that so far has escaped detection. There is an alternative explanation that is highly unpopular, and that is that Einstein-Newtonian concepts of gravity break down at the level of the large scale structure of the universe.

The conclusion that about 90% of the universe is missing comes from at least three lines of evidence. Firstly, it has been found that spiral galaxies spin faster than they should, so much so that the outermost stars should be catapulted off into space.

The second problem arises from observations made with X-ray telescopes on the clouds of gas that surround elliptical galaxies. Calculation shows that the visible mass of these galaxies would have quite inadequate gravitational strength to hold on to these gas clouds.

The third problem comes from observations on some of the enormous clusters of thousands of galaxies where it is found that the speed of individual galaxies is so great that the clusters of galaxies should have flown apart billions of years ago.

These three examples are amongst the observations that give rise to this problem of the missing mass of the observable universe. The more obvious candidates to make up the missing dark matter are stars and galaxies that are difficult to detect such as brown dwarfs, white dwarfs, neutron stars, dwarf galaxies, and, of course, black holes. In addition there are particles that are very difficult to detect such as the neutrinos which may or may not have mass. Then there are hypothetical particles such as axions and photinos that may do something if they are ever shown to exist. However all of these candidates have been considered in detail, and none appear to provide a satisfactory answer. One, so far not mentioned, is the shadow matter proposed by the Superstring theory, and we will come back to that shortly. For the moment let us diverge and consider the alternative view that the laws of gravity are wrong.

The challenge to the accepted Newton-Einstein laws of gravity has come from two Israeli scientists, Melgrom and Bekenstein. If you remember your school book physics, Newton's law stated that the gravitational attracting force acting between two bodies is proportional to their masses and inversely proportional to the square of the distance between them. If you wish to place a satellite in orbit around the earth, this law will do it for you with no problems. The Einstein modification becomes necessary when we introduce exceptionally high speeds and also to explain complications not accounted for by the Newtonian theory. The Israelis' modification says that the gravitational force is proportional to the square root of Newton's law. This change has the important effect in that, relative to Newton's law, it increases gravitational attraction as distances increase, and certainly does something to solve some aspects of the missing mass problem. However, in other ways, it creates as many problems as it solves, and to compensate, a Dutch astronomer, R.H. Sanders introduced a new anti-gravity force that acts over distances of a few hundred thousand light years.

All of this is in the melting pot, and perhaps the true solution may include both dark matter presently undetected, a modified law of gravity, and antigravity effects. One point to notice is that these difficulties with older concepts have only become apparent with the invention of sophisticated new instrumentation. Prior to these recent advances, most astronomers and physicists were convinced that the Einstein modification of Newton's law was as close to absolute truth as man could possibly come.

It is time now to see what The URANTIA Book is telling us in relation to these problems. On page 482, we read, "Physical materialized energy, organised as so-called matter, cannot traverse space without affecting linear gravity response. Although such response is directly proportional to mass, it is so modified by intervening space that the

final result is no more than roughly approximated when expressed as inversely proportional to the square of the distance. Space eventually conquers linear gravitation because of the presence therein of the antigravity influences of numerous supermaterial forces which operate to neutralize gravity action and all responses thereto."

Not so long ago, the thought that the Einstein-Newton gravity laws may not be entirely correct or the mere suggestion that anti-gravity may be a reality could have got you burned at the stake. Once more, as time passes, what have previously appeared to be incorrect or even outrageous statements in The URANTIA Book, have come to coincide with more advanced knowledge.

Perhaps all that has been somewhat indigestible and soporific, so let us get on with more interesting things like invisible men. The Book tells us that both primary and secondary midwayers are invisible to us mortals, and that they wander about this planet making life difficult for us so that our characters may improve. Once upon a time they could be quite mischievous, but this is no longer so. As far as I can discern, the invisibility of the midwayers is not because they are purely spiritual beings, but may be because their bodies are constructed from morontia material. The Book also tells us that "the morontia spheres are architectural spheres and have just double the number of elements of the evolved planets. Such made-to-order worlds not only abound in the heavy metals having one hundred physical elements (as does our earth), but likewise have one hundred forms of a unique energy organization called morontia material." At least some of these morontia worlds are located within our own universe, and since they are partly constructed from the same elements as our earth, they should be quite visible to our instruments. We are not told whether or not the 100 new elements are visible to our eyes. However, the resurrection body of Jesus was apparently a morontia body, and special techniques were needed to make it visible to human eyes. Midwayers are not spirit beings, so presumably have invisible morontia bodies. Hence it seems likely that these bodies are constructed from some of the 100 new elements present on the morontia worlds, some or all of which must be invisible to our eyesight.

Wherever our scientists have trained their telescopes and new instruments such as the radio and X-ray telescopes, they have found evidence for only the 100 or so elements already existing on earth. Even the most distant stars appear to be made of quite ordinary and familiar elements like hydrogen, helium, oxygen, carbon, and so on. Surely then, from a scientific viewpoint, one is entitled to be skeptical about 100 invisible elements. But it seems that Superstring theory in its most advanced form may change all that, for in the process of fissioning from ten dimensions down to a smaller number, an entirely new form of matter may form. This matter has weight like all our familiar matter, but is totally invisible. It is also tasteless, and has no smell, and even our most sensitive instruments cannot detect its presence. If you could hold this dark matter in your hand, your hand would feel heavy, but there would be no other indication for its presence; it has no other known form of interaction with ordinary matter. If this theory of dark or shadow matter is correct, there may be dark matter pervading the entire universe, and indeed there may be more shadow matter than ordinary matter. In saying this, I am quoting from statements made by Dr. Michio Kaku, one of the main protagonists

of Superstring theory. At present, it can only be conjectural to equate the shadow matter of Superstring theory with morontia matter, but the possibility is definitely there.

At the time of receipt of the URANTIA Papers, the famous physicist, Wolfgang Pauli, attempted to account for anomalies arising in studies of radioactive beta decay by proposing that a particle with no properties must exist. He then went on to state that he had done the unforgivable thing for a physicist, he had proposed something that could never be proved. The URANTIA Papers saw fit to include Pauli's undetectable particle in their description of the atomic nucleus, but 25 years had to elapse before some ingenious experiments demonstrated that Pauli was correct. The same section of the Papers told us about the carrier of the weak force, and went on to say that there was an undiscovered strong force which operated to hold the atomic nucleus together. All these statements were in the science fiction category when they were made and for the last two, fifty years had to elapse before they became accepted scientific theory.

In considering this present foray to the frontiers of research in cosmology and theoretical physics, we need to remind ourselves that no matter how outlandish certain URANTIA Book statements on matters of science may appear to have been, advances in human knowledge over more than fifty years since the URANTIA Papers were received, should now have taught us that no statements in the Book can be rejected out of hand on account of non-conformity with current thought. On the other hand we must beware of fanatically defending scientific information contained in The URANTIA Book as being an infallible revelation of God's word, for the Book itself tells us that this is not so.

The mandate given to the revelators on matters of science (p.1109) prohibited the impartation of unearned knowledge, and forbade the inclusion of humanly undiscovered facts. The Book tells us that the cosmology of these revelations is not inspired, and that within a few short years, many statements regarding physical sciences will stand in need of revision. This is an highly unusual statement, as all other revelations that I have heard of pronounce their own infallibility.

There are still at least three major areas where The URANTIA Book account is very much at variance with the opinion of the majority of earth scientists. These areas are the description of the formation of our planet and its early geological history, the time of the origin of life on earth, and the origin and the age of the universe. In the light of previous experience, I will not be surprised if eventually scientific opinion and The URANTIA Book accounts coincide at least in the first two instances. What about the third major area, that of the origin and age of the universe? In this area, science and The URANTIA Book will probably never agree. The reason for this is that the system described by The URANTIA Book is a controlled one in which energy is routinely manipulated by supermaterial beings, the Power Directors, to ensure the stability and continuity of the system in accordance with the divine plan. The very nature of scientific investigation is such that it must seek to find answers consistent with discoverable laws. The moment science invokes the supernatural, scientific investigation and progress grind to a halt.

Before concluding, there is one other area upon which I would like to comment. At the forefront of scientific research, there are some

quite brilliant and sincere scientists who, in their enthusiasm, recklessly declare that mankind is on the brink of discovering all about everything. There are many good reasons to take a more conservative viewpoint, but we will discuss only two:

Firstly, mathematics is inextricably interwoven into the foundations of all scientific knowledge. It follows that if the foundations are shaky, the whole edifice must also be shaky. Godel's incompleteness theorem, crudely paraphrased, states that all axiomatic formulations of number theory include undecidable propositions. It follows that if a formulation of number theory does not include undecidable propositions, it must be inconsistent. Undecidable means unprovable. Number theory is at the very foundation of mathematics, which, in turn, are the foundation upon which all scientific theory is constructed. Indirectly, Godel's theorem tells us that all scientific theory may contain hidden statements that are unprovable. Godel's theorem was extended recently when algorithmic information theory demonstrated that incompleteness and randomness are natural and pervasive in mathematics.

The second point is the significance of Shannon's solution of the black box problem. The black box problem has become scrambled in recent usage. Shannon's black box concept arose in wartime when it became necessary to design self-destruct mechanisms for secret devices that might fall into enemy hands. Such a device would be booby trapped to explode if any attempt was made to open it in order to discover its inner workings.

An example of a black box of this kind would be a secret radar device that has survived from an airplane crash. The investigating scientist cannot open the device but he can feed input signals into it and watch the radar screen to see its response to those signals. After he collects all possible information, he can then attempt to design a circuit that will carry out the same functions as the secret device.

Shannon formulated a theory to cover the general problem of such black boxes, showing that, although there may be a single simple solution to such problems, there would always be an infinite set of more complex solutions that could achieve the same results. Shannon's black box has quite profound meaning for scientists, for scientific research is riddled with black box problems, many of which are subtle and may be easily overlooked. One that is often overlooked is due to our inability to reverse the flow of time. All events that occurred uniquely in the past, can never be repeated, hence are black boxes that have no unique solution. The origin of life on earth and the origin of the universe are just two of the innumerable black box problems for which science can never supply a unique answer.

The message from these two examples is that if you hear any scientist pronouncing either on his own infallibility, or on that of science itself, be assured that he is either ignorant of these and other limitations to human knowledge, or else he is on an ego trip.

At the conclusion of this paper, a summary will be presented that includes approximately 30 bits of scientific or historical information from The URANTIA Book, about which there was no certain knowledge at the time of receipt of the Papers, and which have since come to coincide with current opinion. What then is the significance of this

material that is predictive in nature? Undoubtedly many, probably the majority of URANTIA Book readers, have concluded that the very quality of the Book in respect to its theological and philosophic content, plus the magnificent account of the revelatory life of Jesus, are sufficient in themselves to verify the claims of the Book. In addition, we have the help of the spirit of the Father and the Spirit of Truth to aid us in forming an opinion. Those who have the background of a specialist science education, and are lucky enough to be old enough to remember what was known in the 1930's, 1940's and 1950's, really have no choice other than to conclude that the material we will survey confirms the claims of The URANTIA Book with as great a degree of certainty as man can expect to achieve from logical and intellectual considerations.

There are, of course, portions of this scientific and historical material that do not conform with current ideas. These must be left to the future to decide. For the material we have covered in the summary, the possibility for getting the facts correct, either on the basis of random or informed guesswork, is so low that the authenticity of the claim for an extraordinary origin for The URANTIA Book seems incontestable. Hence, if some of the material eventually turns out to be either naive or erroneous, the problem really becomes one of reconciliation of that material with the mandate and intent of the authors. It does not invalidate the claim to revelation, that is so conclusively supported by other predictive material of a scientific or historical nature.

Dr. K. T. Glasziou, Maleny, Queensland, Australia - 1988

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