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THIRD PLANET NEWS

TRANSITIONS: Between The Messenger (now defunct) and Cosmic Reflections, I've been editing journals for over ten years. I've been quite willing to do the work of editing, copying, stapling, folding, stamping, mailing, maintaining the mailing list, printing labels, etc. as a part of being able to write what I'm interested in and get it to those who are interested in it. I decided recently that I wish to do less editing and more writing. Therefore, I asked the editors of Innerface if they would be interested in having me on their team. They said yes. They publish science articles as well as a good selection of spiritually oriented/human interest articles for those who crave them. As an added bonus, their journal reaches many more people than does Cosmic Reflections.

A number of C.R. readers have faithfully supported this journal with donations. To be fair, I decided to give the names of those who donated to C.R. in the last two years to the US publisher of Innerface and donate any C.R. funds left to that journal.

Because Innerface offers a diversity of subject matter and usually publishes four times a year, I believe that C.R. readers will be pleased with this new arrangement. I look forward to working with the good folks in Australia who edit Innerface. I will miss corresponding with C.R. readers, but I hope that a few of you will still let me know if my articles enlighten, amuse, or upset you. I also hope that all C.R. readers will wish to take Innerface and support it as you have supported C.R. Journals and newsletters are the nervous system of the Urantia community; they keep one part of the movement aware of what the other parts are up to. They are also the town halls of the community where we can air-and hopefully resolve-disputes, determine consensus on issues, and celebrate both our similarities and our diversity. When-if ever-everyone has access to computer networks, these networks may provide the same

functions but until then we need the printed word.

Because of this change, I will be closing the PO Box for this journal. Please send any future correspondence to:

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Post Script: Because of corporate downsizing (read: layoffs,) I may be leaving North Carolina to seek my fortune elsewhere, but the above address should be OK for at least six months.

GOD'S BIBLE: I'm sure that many of you have received the advertisement for God's Bible, subtitled The Life and Teachings of Jesus. While I think that having the life and teachings of Jesus in one inexpensive volume is a great idea, I hope this book is being published for spiritual reasons rather than for political ones. Never a dull moment in the Urantia community these days!

OOPS: I warned everyone who would listen that it might happen, and now it has. A group of astronomers, using data from the Hubble telescope, have concluded that the universe is only ten billion years old or less. Other astronomers feel they have proof that the oldest stars in globular clusters surrounding our galaxy are about 16 billion years old. How embarrassing; the universe is now younger than some of the stars in it. The universe described in The Urantia Book is thousands of times older than the universe currently accepted by most astronomers. If stars in our galaxy are 16 billion years old, and ours is a young galaxy, it seems logical that the universe is many times older than these stars.

The universe may not be quite as The Urantia Book describes it, but it is obviously not as astronomers think it is either. They have a great deal more work to do before they can establish the sort of credibility that would allow us to confidently use their findings as the criteria against which to measure the cosmology of The Urantia Book. We need to take both with grain of salt.

HIDDEN GALAXY: A new galaxy has been discovered on the far side of our Milky Way galaxy according to an article in the December issue of Sky and Telescope magazine. Stars or galaxies lying beyond the far side of our galaxy cannot be seen using telescopes that rely on visual light because of the clouds of gas and dust that lie in the

plane of our galaxy between Urantia and the galactic center. However, radio waves are able to penetrate through all the obscuring clouds so radio telescopes can be used to "see" objects on the other side of our galaxy.

The astronomers calculate that the new galaxy is ten million light years distant, or five times as far as M31, the giant spiral galaxy in Andromeda, but it apparently is only one tenth the size of our Milky Way galaxy. This newly discovered galaxy is of special interest because it is in the general direction-according to the book-in which Paradise is supposed to lie. If it lies to one side of the line of sight between us and the center of our galaxy, then it could be part of an adjacent superuniverse. In fact, the discoverers of this galaxy speculate that it might be a part of a cluster that includes two other small galaxies at some distance from us. Stay tuned for more exciting developments from the far side of our galaxy.

FORMULAS and CONSTANTS IN THE URANTIA BOOK

Relativity: There are several scientific formulas and constants in the book. Are these correct? The first one I noticed was a form of Einstein's famous formula relating energy, mass and the speed of light, $E = MC^2$, where E is energy, M is mass, and C is the speed of light. However, it is not in this form in the book. On page 474 the authors inform us, "The increase of mass in matter is equal to the increase of energy divided by the square of the velocity of light." Translated into mathematical form: $dM = dE / C^2$, where d indicates an increment of a quantity. Solving for dE puts it in a more familiar form: $dE = dMC^2$. This is equivalent to the familiar form $E = MC^2$.

Hubble's Constant: In the early part of this century, pioneer astronomer Edwin Hubble discovered that all of the galaxies in the universe seem to be flying away from our Milky Way galactic system. He didn't like the idea, but eventually had to accept it as the most logical explanation for red shift. The variation in red shift among galaxies suggested to him that most galaxies were moving away

"the cycles of space respiration extend in each phase for a little more than one billion Urantia years." How does space respiration relate to the Big Bang theory?

The Big Bang theory asserts that the universe is undergoing uniform expansion, i.e. that it is expanding at the same rate throughout. The book agrees: We are told on Page 134 that the Master Universe is undergoing uniform expansion. What is meant by uniform expansion? For one thing, it means that it is expanding everywhere equally, like the surface of a balloon that is being blown up; the entire surface is expanding. Furthermore, the inside is expanding uniformly everywhere. An analogy that has been used is that the galaxies are like the raisins in a muffin as it cooks. As the dough rises, the raisins separate from one another, and the further a raisin is from another, the faster they are separating. This may not seem logical but perhaps Figure 2, a top view of the Master universe, can help explain the situation. The figure to the left shows the galaxies separated by one astronomical unit (A.U.) The figure represents two rings of galaxies surrounding Paradise. This is a simplified representation of the superuniverse level and the first outer space level. If the galaxies separate like the raisins in a muffin as the universe expands, then the right hand part of Figure 2 shows the resulting expansion of the Master universe. Paradise and the superuniverse level are now separated by two A.U., as are the superuniverse level and the first outer space level. The galaxies in the superuniverse level have moved outward one A.U. in one unit of time. If we assume that the time required for the move was one century, then the speed of the galaxies in the

superuniverse level is one A.U. outward per century. Since the first outer space level galaxies have moved outward from Paradise 2 A.U. in the same amount of time, its velocity is 2 A.U. per century. Likewise, a second ring of galaxies situated 1 A.U. beyond the second ring would have moved outward 3 A.U. in one century, so its velocity is 3 A.U. per century. This means that the further away a galaxy is from ours (looking in a direction away from or towards Paradise,) the faster it is moving away from us if the expansion of the universe is such that the separations between the rings of galaxies increase equally so the separations remain equal. This would mean that we would see increasing red shift of the light as we look at galaxies further and further away. This is exactly what the Big Bang theory predicts and what astronomers observe. But this does not mean that we will observe the same amount of red shift versus distance that the Big Bang theory predicts.

In order to know how much of the observed red shift is due to space respiration, we would need to know how far the Master Universe expands and contracts. The authors have given us the time required for the whole cycle, and a few dimensions of the superuniverse and outer space levels, but not enough to determine the diameter of the superuniverse and outer space levels. Without such data, we can only make educated guesses about the dimensions.

There is a nearby galaxy that may help us determine how far the master universe can contract however. This is M31, the great spiral galaxy in the constellation Andromeda. M31 is only about two million light years from our Milky Way galaxy, and appears to be in the first outer space level from the information given in the

book. Since we are at the midpoint of the expansion phase of the Master Universe, M31 was closest to the superuniverse level a billion years ago. How close? Obviously, it could hardly have been closer than a few hundred thousand light years from the superuniverse level or its gravitational effect would have disrupted the Milky Way galactic system or an adjacent superuniverse. If we choose a one million light year spacing at the closest and assumed that our galaxy has moved outward one million light years, then M31 has moved two million light years in a billion years. This works out to a velocity of roughly 12 billion miles per year or 1,340,000 miles per hour. Of course, the contraction could also have been much less than I assumed. We can come up with some limits on how close M31 could come to the superuniverse level, but M31 may have moved much less than the maximum amount. Andromeda may have moved only 100,000 light years in a billion years. If the contraction due to space respiration were small, then the resultant red shift would be quite small, probably smaller than that observed by astronomers. Then we would have to postulate another cause for most of the observed red shift, such as light becoming "tired" as it passes through space as a few astronomers have proposed.

Notice that I have made an assumption of the distance between the galaxies increases but remains equal as the universe expands. Someone may ask, "How do you know that the distance between the galaxies doesn't remain at its original value and that they don't just all expand out as a group?" If this were so then a large hole would develop centered on Paradise and such a gigantic void in space would be obvious to astronomers. No such immense void has been observed.

There is one thing I did ignore in my analysis. That is the question of whether the galaxies themselves are also expanding as the universe expands. It might seem logical that they would, but if they did, there would be some interesting consequences. Since gravity is the glue that holds the galaxies together, expanding them would require expending energy and could weaken them so much that they might literally fall apart. Galaxies would be exploded into giant nebulous star clouds. Since we don't observe such phenomenon as we look back further and further in time, I would guess that the space between galaxies expands, but not the space within galaxies because gravity is keeping it bound together.

There is another question about space respiration that we and I suppose the angels would also like to know, and that is: What is its purpose? The authors tell us that the purpose has not been revealed but of course that doesn't prevent us from speculating. Nothing seems to occur in the cosmos that is without purpose. Consider the process of space respiration: During the contraction cycle of the Master Universe, space is returned to Paradise, somehow converted, and pumped into the space reservoirs. Could it be that space in some way gets "tired" and must somehow be recharged? Is that the purpose of the space reservoirs? Or perhaps the circulation of energy in the universes requires space respiration. We are told on Page 175C that it requires 968 million years for energy to complete the circuit of a superuniverse. This is very close to the billion years required for a contraction or expansion cycle of space respiration. Perhaps space respiration is the cosmic heartbeat that helps distribute the life blood of energy to the Master universe.

I am pleased that there will be mysteries such as space respiration to intrigue us throughout our eternal careers. There may be some that we can never solve, but the effort will no doubt add spice to our eternal futures.

THE STRUCTURE OF THE UNIVERSE

The Urantia Book tells us a great deal about the structure of the master universe. If this information is correct, what should we expect to see as we examine the heavens with our telescopes? Does the picture painted by the book agree with our observations so far?

In a previous issue of Cosmic Reflections, I had reported on measurements of galaxies to determine the structure of the northern sky. When the galaxies in the survey were plotted on a computer, they found a structure millions of light years long, composed of thousands of galaxies, the so-called "Great Wall." The November issue of Sky and Telescope details a more recent survey, this time of the southern sky. This survey found another great wall that might be connected to the northern Great Wall. Yet another survey of galactic distances, this time a whole sky survey, was reported in the December, 1994 issue of Sky and Telescope. Lo and behold, the Great Walls are part of a elliptical shell of galaxies about 650 million light years across and we are roughly in the center of

this shell. Of course, it isn't a perfectly uniform shell of galaxies, but the outline of it is unmistakable, even in two dimensional pictures. One of the astronomers likened the shell to a cocoon. Is this the sort of universe structure that The Urantia Book describes?

The authors tell us that the master universe consists of counter-rotating concentric tori (circular tubes) that increase in size as we move outward from Paradise, which is the center of everything. If we look away from the center of our Milky Way galaxy, we should be looking at the first outer space level. If we assume that the plane of our galaxy lies in the plane of the master universe (it may not,) and if we looked up or down, we would see the surface of this zone curving away from us until it terminated far overhead. More correctly, we would see the galaxies at the surface of the zone. If we looked straight up, we should not see anything except the stars and clusters in our own galaxy. If we again looked straight out toward the center of the first outer space level and swung our gaze left or right, we should see the outer space level curve away from us, and because of perspective, the height of the outer space level would appear to decrease until it reached a minimum in the direction of Paradise, where it is at its greatest distance from us. This assumes of course that there is nothing between us and the other side of the universe. As we look towards Paradise, there is a dead zone because we are trying to look through the dense part of the Milky Way galaxy. Of course, we can look above and below the plane of our galaxy so it should be possible to see the top and bottom of the opposite side of the first outer space level if we look toward the center of our galaxy. Therefore, what we should see as we look out from the earth is a wall that surrounds us. When we look up or down, we should see relatively clear zones shaped like a lopsided ellipse, since we are closer to one side of the first outer space level than we are to the other. So far, this isn't what astronomers are seeing as they map the universe. The wall appears to be a complete shell. Though the structure of the universe doesn't seem to totally agree with what the authors of The Urantia Book describe, there is nevertheless a fascinating picture emerging of large structures that can't be explained by current human cosmology. Of course, we could invoke the caveat that telling us the exact structure of the universe would be a violation of the revelators mandate. As I suggested in an earlier article, perhaps the authors gave us a pictorial metaphor rather than the exact picture. Whatever the

