Two Cosmologies, Astronomy and the Urantia Book

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Astronomy concerns itself with stars, galaxies and other energy sources. A star is like the sun, but is so very far away that its size is a point of light. A galaxy is a huge group of stars that cluster and travel together. Galaxies are the building blocks of the universe. Cosmology is part of Astronomy that deals with the structure and origin of the universe (all matter in existence). Astronomy generates theories which have to explain what we see today. Astronomy's telescopes can see only part of the universe and this limits the theories. The Urantia Book, on the other hand, is concerned with inhabited worlds (where human life exists), their history and administration. The organization of these worlds is not necessarily related to physical or astronomical systems. Yet these two cosmologies describe the same physical universe. I will attempt to identify the corresponding parts of each cosmology, and to point out agreements and differences between them. With information from the Urantia Book and from Astronomy, I will guesstimate the size and location of Nebadon and Orvonton.

One approach is to figure out how many stars are associated with an inhabited world. For example, our star, the Sun, has one inhabited world, Urantia. This information will establish one relationship between the two cosmologies. I assume that all inhabited worlds have temperature, air pressure and gravity conditions close to those of the Earth, and that the type of life is similar to ours. The Urantia Book (UB) says that all mortals of will dignity are erect bipeds (UB p564B). Astronomy has not detected any life elsewhere in the solar system (the Sun and its planets) or any other place in the universe. While in our solar system, the Sun seems to have one inhabited world, do all suns have inhabited worlds? The Urantia Book says that Urantia is one of 619 inhabited worlds (p456D)of the Satania System; Satania can ultimately have 1000 inhabited worlds, but is now sparsely populated. It has 2000 blazing suns and 7000 physical systems (probably dark matter, blazing suns, cool suns and multiple star systems). According to the above information, there is one inhabited world among two or three blazing suns, or one inhabited world among 7 to 11 physical systems. The numbers could change with time as Systems fill up with inhabited worlds and as we learn more. Astronomy says that about 98% of all the stars in our Milky Way galaxy are dwarf stars; They are too small or too cool to support life on their associated worlds, if any. The other two percent could be blazing suns. Since the UB indicates there is one inhabited world among two or three blazing suns, this amounts to about one inhabited world per 100 stars of all types. This is a new number that has been derived from the Urantia Book and from Astronomy. It will be helpful in guesstimating the size ot the UB divisions of the Grand Universe. Since the Milky Way galaxy has about 100 billion stars, it should have about one billion inhabited worlds. Astronomy does not know how many inhabited worlds are in the Milky Way galaxy, but is certain that there is one, the Earth.

We will start by comparing the cosmologies of our solar system and then go to larger and larger astronomical systems. Our solar system has the Sun at

its center, Fig 1. The Sun has almost all (98%) of the mass (stuff) in the solar system, Fig 2. There are nine planets which spin on their axes and revolve around the Sun; All the planets move in an almost flat plane. The Earth spins or rotates on its axis once a day, and revolves around the Sun in one years time. The four inner planets are small and include the Earth - the third from the Sun. After the fourth one, there is a band of small planetary fragments and smaller pieces of rock that are called the Asteroids. The next two planets are the largest ones, Jupiter and Saturn, and each has many small satellites and rings of small space matter. The next two are medium sized, Uranus and Neptune. The last planet is a very small one called Pluto. Table 1 shows the major differences between the two solar system cosmologies. Otherwise, the two cosmologies agree (age of the Sun, relative size of the planets, arrangement of planets around the Sun etc.) The Book speaks about 5 outer planets beyomd Saturn, but Astronomy has found only three. Are there 2 more faraway planets that may yet be found?

Table 1

Property	Astronomy	Urantia Book
Creation of Sun	Condensed from huge cloud of gas	Spun off from hot convulsing nebula
Origin of planets	Condensed from hot gases at same time as the Sun	Condensed from hot gases pulled from the Sun by a passing nebula. (p656)
Number of planets	9 plus asteroids	11 plus asteroids (p656)
Creation of asteroids	material of an unformed planet fifth from the Sun.	breakup of fifth planet pulled close to Jupiter (p658B)
Planets suitable for life like ours.	2 ?	3 (p173D)

Our Sun does not appear to be closely associated with any nearby stars. But the Sun and the nearby stars revolve about the center of the Milky Way in about 200 million years. The Sun and the neighboring stars appear to be in a spiral arm of the Milky Way galaxy (Fig 5), and about half way to the outer edge of the galaxy. Since we have shown that there are 100 stars for each inhabited world, there are about about 100,000 (100x1,000) stars of all types in Satania. The Book (P655B) says that the nebula, which gave birth to our Sun, created 136,000 suns along with our Sun. Perhaps most of these make up the Satania system and its 100,000 stars.

The average spacing between stars in our part of the Milky Way is 4 light years. (A light year is the distance that light travels in one year of Earth time or 6 trillion miles. It is simpler to talk about light years of travel time distance rather than trillions or more miles of distance). In the simplest arrangement, the 100,000 stars of a system could fill an imaginary equal sided box that has about 50 stars along an edge (50x50x50=

125,000), or is about 200 light years (50x4=200) long on a side. Or there could be about ten inhabited worlds along each edge of this box for a total of 1,000 worlds (10x10x10 =1000). This could be the size of the Satania System. However, the Book says that the headquarters of the Satania system, Fig 3, is not a luminous world (p520) and cannot be seen from Urantia. The next larger administrative division is called a constellation; It consists of 100 systems (Table 2), and should be 100 times larger in volume or about 5 times longer on an edge (5x5x5=125). In a simple case, this would mean that a constellation might fill an imaginary equal sided box that is about 1000 light years on a side, Fig 3A. The next larger administrative division is a local universe. This consists of 100 constellations and could be in a box that is about 5000 light years on an edge. Since the Milky Way disk is only 3,000 light years thick, the other two dimensions of the local universe should be increased by 20%: or the other two dimensions are about 6,000 light years long. The local universe of Nebadon could be 3,000 light years thick, 6,000 light years along a disk radius and 6,000 light years perpendicular to a disk radius. This could be the approximate size of the local universe of Nebadon, Fig 3B. . Since Nebadon has 100 constellations, how might these be arranged? A simple way is an imaginary box with smaller imaginary equal sided boxes inside. A . constellation shaped like an equal sided box, has edges that are 1,000 light years long: and the 100 constellations of Nebadon can be arranged in three layers atop one another, and a 6X6 arrangement of constellations in each layer. This fills the 6,000 by 6,0000 by 3,000 light years size of a local universe. In a similar way, a constellation could have its 100 system boxes arranged in 5 layers with a 5 by 5 arrangement of systems in each layer. Each system box is 200 light years on an edge and can have 1,000 inhabited worlds in its box. This arrangement is a very simple one, and is not necessarily the way things are arranged. Table 2 shows the UB administrative arrangement of inhabited worlds (p167) . Fig 4 also shows the administrative organization of the grand universe.

Table 2 (p167)

The Administrative Structure of the Grand Universe.

Category	Cumulative Number of inhabited Worlds in a Category	Number of things in next Category
Urantia	1	1000 inhabited worlds in a System
System	1,000	100 Systems in a Constellation
Constellation	100,000	100 Constellations in a Local Universe
Local Universe	10,000,000	100 Local Universes in a Minor Sector
Minor Sector	1,000,000,000	100 Minor Sectors in a Major Sector
Major Sector	100,000,000,000	10 Major Sectors in a Superuniverse
Superuniverse	1,000,000,000,000	7 Superuniverses in the Grand Universe

The next major structure we will consider is the Milky Way galaxy. This is a group of about one hundred billion stars. It is a huge, flattened circular disk about 100,000 light years in diameter. The disk at its outer edge is about 3,000 light years or 18 quadrillion miles thick. There is a

bright central bulge or ball that extends from the center of the disk to about one fourth of the radius; The bulge has a radius of 10,000 light years at the center of the Milky Way. The Sun is located about half way out along a radius of the disk. We can see the Milky Way on a dark clear night as a broad band of dim light (Milky Way) across the sky. A small telescope or binoculars will show that the band of light consists of thousands of stars. The disk of the galaxy is not uniformly illuminated, but essentially consists of two interspersed bright spiral arms that go from the bulge to the outer edge. Astronomy calls this a spiral galaxy, Fig 5; Spiral galaxies are large galaxies. Since we are inside the Milky Way spiral galaxy, we can only see the parts of the galaxy disk around us as a dim band across the sky. The center of the Milky Way is hidden far beyond the constellation of Sagittarius (Astronomical constellations are groups of nearby visible stars, while Urantia Book Constellations are administrative units of 100,000 inhabited worlds). The closest spiral galaxy to us is the the great nebula in the constellation of Andromeda, Fig 6. It is so dim that it is hard to see with the unaided eye. The Urantia Book says that this nebula is about one million light years away and is about the same size as the Milky Way. This agreed with Astronomy's measurements in 1935 (when the UB information became available); but Astronomy has now doubled the value for both of these numbers. The UB says that Amdromeda is evolving and is not inhabited (p170A), but Astronomy has no information about this.

There are several statements in the Urantia Book about the Milky Way (p168, 455) and all do not agree. As best we can tell, the Milky Way is a minor sector (Ensa) of a supergalaxy (Orvonton). If it is, it contains 100 local universes (Table 2), including our local universe of Nebadon. Then Nebadon is about one hundredth of the Milky Way. These local universes are probably located between the central bulge and the outer edge of the Milky Way. There probably are no local universes in the central bulge because Astronomy finds that there are energy and gravity fields in the center of a galaxy that could be inhospitable to life as we know it. The spiral part of a galaxy is a structure in the gas of a galaxy, and is not associated with the long lived stars such as the sun. These long lived stars move faster than the spiral pattern. The 100 local universes could be located in 4 or 5 concentric rings that might be between the central bulge and the edge of the disk, Fig 3B. There could be 20 or 25 local universes in the innermost ring and its neighboring ring. The local universe of Nebadon could be in this second ring, because the Sun is located half way out in the disk. Its length could be one twentieth of the ring. The other outer rings are in part of the disk where the separation between stars is larger, and the local universe are accordingly larger. On Page 1, I estimated that the Milky Way has about a billion inhabited worlds. If this is divided among 100 local universes, there should be about ten million inhabited worlds per local universe. This agrees with the UB information that a local universe can have ten million inhabited worlds.

Until 15 years ago, Astronomers thought that galaxies were uniformly distributed throughout the universe. Part of the problem was the difficulty in measuring distances to remote galaxies. Astronomers are just starting to find some structure, but very little is now known about the large scale structure of the universe. Many of the galaxies appear to be in the same plane; This agrees with the Urantia Book. Although the Milky Way and its neighbor galaxies are moving away from all the other distant galaxies as part of the expansion of the universe, there is another smaller motion. The Milky Way shares this motion with about 20 nearby galaxies. These are two large spirals (Milky Way and Andromeda), and the rest are small or dwarf galaxies. Most of the small galaxies cluster around the two large spirals. The two spirals are about 2.5 million light years apart. These 20 galaxies are called the local group, Fig 7. The local group is almost in a flat plane, and is part of a larger cluster of galaxies which is under the gravitational control of a large group or supercluster of galaxies situated far beyond the local constellation of Virgo. Nevertheless it is called the Virgo Supercluster. The distance to the Virgo Supercluster is about 60 million light years. Astronomy is not sure why we are orbiting around the Virgo Supercluster. But the Urantia Book seems to have an explanation. Since the Milky Way is a minor sector, it and 99 other minor sectors constitute a major sector of Orvonton, and therefore they orbit around the center of the major sector. The Virgo supercluster would then be the center of the major sector of Splandon.

Within the last decade, astronomers have found an additional common motion for all the galaxies with the Virgo supercluster as their center. They appear to be gravitationally revolving around another galactic supercluster that is about 250 million light years away. There are other superclusters that also appear to be revolving around this same gravitational center. Astronomers call it The Great Attractor, because it appears to influence so much of the known universe. However, Astronomers are not sure why this situation exists. If the Virgo supercluster is the center of a major sector, then it and all of its associated matter are in motion about the center of a superuniverse. The Urantia Book appears to say that Astronomy's Great Attractor is the center of the superuniverse of Orvonton, Fig 8. Orvonton is the seventh and youngest superuniverse of the Grand Universe. The shape of Orvonton is a watchlike, elongated, circular grouping that is one seventh of the inhabited universe (p167C), perhaps with a diameter of 500 million light years. The spheres of Orvonton are traveling in a vast elongated plane (p167C). Nebadon is on the outer edge of Orvonton (p359). The seven superuniverses are in one plane and circuit the gravitational center of all things, Paradise and Havona, Fig 9. Paradise (p118) and Havona (p152) have more mass (stuff) than the rest of the Grand Universe and should be the gravitational center of the Grand Universe. But Astronomy has just found a motion center that could be associated with this. It is called the Shapley concentration. Havona is encircled by two high, massive, cylindrical walls of dark matter (p153A), and thus is not visible to us. The Book says that it lies beyond the Sagittarius center of our minor sector. The Book seems to imply that the seven superuniverses circuit Havona in 25 to 35 billion years (p165). This is much longer than the time of the Big Bang, and is a measurement that might be feasible in the future. It will be interesting to see if future

astronomers will find this. Table 3 summarizes our educated guesses of the simplest size and shape of the various parts of the grand universe.

Table 3

Proposed simple size and structure of the components of the grand universe.

Category	Size and Shape	Remarks
Inhabited World	In a box shaped volume, 20 to 30 light years on an edge.	Distance to nearest inhabited world is 10 to 40 light years.
System	In an equal sided box 200 light years per edge.	Size of box making up a system that can hold up to 1,000 inhabited worlds and 100,000 stars.
Constellation	Equal sided box 1.000 light years per edge.	Size of box that holds 100 systems. Systems are in 5 stacked layers with 5 by 5 array per layer.
Local Universe	Galactic disk cut into 5 or 6 concentric rings. Local Universe is 1/20 of a ring.	A ring section has 3 stacked layers of constellations. Each layer has a 6 by 6 array of constellations.
Minor sector	Spiral galaxy disk. 100,000 light years in diameter.	Milky Way has 5 or 6 concentric rings of local universes. about 20 universes per ring.
Major Sector	Disk with diameter of 120 million light yrs.	Flattened supercluster of galaxies. Has 100 minor sectors.
Superuniverse	Disk with diameter of 500 million light yrs.	Flattened supercluster of galaxies. Has 10 major sectors.

Paradise is the center of the entire universe, and Havona is the central universe that surrounds Paradise. Havona is surrounded by a flat elliptical ring of the seven superuniverses. This makes up the so called grand universe. This is followed by an empty or void ring with a width of 400,000 light years. Beyond this is a ring of superuniverses that are now being created; This ring extends out 25 million light years and is called the first outer space level (p129). This is followed by three more void rings (p130), and each of them is followed by another outer space level. There are four outer space levels in all, and together they seem to show the presence of about 70,000 new evolving superuniverses (p354C). The outer space rings seem a little small for so many superuniverses, but these numbers may be in error. The entire creation is called The Master Universe (p129) and includes the Grand Universe, Fig 10. The entire creation exists in almost a flat plane, the supergalactic plane. The Master Universe is not static but is evolving, especially in the outer space levels. There is no life yet in the outer space levels. Since Nebadon is on the far outskirts of Orvonton, and since the center of everything is in the

direction of Sagittarius but far beyond it, then the part of the first outer space level closest to us could be roughly in the opposite direction. The Andromeda nebula is in this general area, and since it is uninhabited, it should be in the first outer space level. It is of interest to note that Astronomy may have found a galaxy- free space between the Milky Way and the Andromeda nebula. This could be the first void ring.

When we consider the creation of the Universe, the two cosmologies have different interpretations of the same data. The Urantia Book talks about eternity - forever. Matter and energy are continuously being created in the universe. About 8 to 10 billion years ago, there was an enormous energy eruption in our part of the universe (p655). This resulted in the creation of about 100,000 suns, including ours, from an enormous nebula (a word used in 1935 to designate visible objects in the sky that were not stars). This number of suns is roughly the same as the number of suns in a system. One wonders if our Satania system was created at that time. Forty billion years earlier this same nebula produced about 850,000 suns, and one wonders if these suns formed 8 systems of our Constellation. Astronomy says nothing existed before 10 or 20 billion years ago; Nothing older than this has been found, but telescopes can barely see out this far. Then, 10 or 20 billion years ago, an enormous injection of energy occurred at one place. All the energy in our universe appeared at that time. This energy was extremely hot; It cooled and matter formed. Science calls this "The Big Bang". The UB energy eruption could have been a sort of local big bang. Both of these explanations account for the weak residual infra red (heat) radiation that can be found all around the Earth; It is left over from the Big Bang or the local big bang. But there is another phenomenon that must also be explained. This is the measured expansion of the universe, so called because all the large scale matter in the universe is moving away from all the other large scale matter in the universe. The Big Bang accounts for this, but a local big bang does not. However, the Urantia Book talks about the respiration of space (p123). Space is real and undergoes an expansion phase for about one billion years; then space contracts for a billion years, but not to a very small diameter. Any matter embedded in space is carried along with it. This does explain the expansion of the universe since we are supposedly in the middle of an expansion phase. The expansion of the universe was known in 1935, but the weak residual radiation was identified much later. It is interesting that the UB provided explanations for both phenomena in 1935. Also in 1935, Science considered space to be a void between astronomical bodies.

Astronomy has recently found that there must be at least ten times more matter than the visible matter. Otherwise, the large galaxies would tear themselves apart because of their revolving motion. But Astronomy has not definitely identified the invisible matter. The Urantia Book was talking about dark matter in 1935 - years before Astronomy recognized the need. However in the thirties, the Astronomer F. Zwicky proposed that some unidentified dark matter might exist, but no other astronomers believed him. The Book identifies much of the dark islands of space as dead suns (p173A). These are suns that have cooled down and have condensed into small bodies with enormous mass; The atomic structure has disappeared, and the mass has compacted as nuclear matter. But why are there so many of them? If one thinks in terms of eternity, it is easy to see that the mass of the dead suns could be many times that of the visible suns, since suns have lifetimes of tens of billion years. If Astronomy also finds that the dark matter consists of dead suns, the Big Bang and its "recent" occurrence must explain the large number of dead suns.

Both cosmologies must deal with energy (fuel for the universe). There must be enough energy to supply the universe's needs. The Big Bang takes care of this by supplying all the energy at the instant of creation, but doesn't worry about where the energy comes from. The Urantia Book speaks of energy circuits that flow through the universe (p123, 175) and supply energy to matter. Such an energy distribution system is needed in a universe that lasts forever. The energy flow starts from the center of all things, Paradise, and encircuits the seven superuniverses. It reaches the center of each superuniverse and is split and channelled to the major sectors, then the minor sectors, the local universes and on through the administrative levels until it reaches the inhabited worlds. Any energy that is unused returns to Paradise almost one billion years after it started out. This energy powers the superuniverses. Astronomy and Physics have no concept like this. The Book even claims that a dead sun that happens to be in the energy flow can be recharged slowly and shine again. A dwarf star that slowly brightens could be an indication of such a phenomenon. The flow path is not an open channel, but is tightly controlled. Although the Book says that we do not know about the type of primary energy involved in the energy flow, it would be interesting to see if astronomers discover any of this in the future.

The Urantia Book says that it cannot reveal to us any information which we do not know, so-called unearned knowledge. Knowledge that we will soon learn is apparently transferrable. There is a question about whether we really know a new concept that has just been conceived but has not yet been proven scientifically. (See previous remark about the concept of dark matter.) The Book also claims that the cosmology in the Book is not revealed, and may have to be revised in the future. I suppose this means that the cosmology information was not officially included in the revelation, but is information known to the presenters. But some of the material might stand the test of time, and could contain some interesting clues about the actual state of affairs.

When the UB appeared in 1935, its cosmology about the large scale structure of the universe was completely different from that of Astronomy (galaxies are uniformly distributed in all directions). The Urantia Book makes three major predictions about cosmology. 1) Most matter in the universe is in a

plane. The Great Wall of astronomy will probably turn out to be this supergalactic plane. 2) The existence and description of dark matter. The existence has been confirmed, and the description is on its way to agreeing with Astronomy. 3) The existence of three gravity centers that define our part of the Universe - Paradise, the center of Orvonton and the center of our major center. Astronomy is just finding these three gravity centers. With time, Astronomy has become more sophisticated at measurement and analysis, and the very latest Astronomical information about the large scale structure of the universe may be starting to look like that of the Urantia Book. If the two universe structures agree, this could be a remarkable prediction made by the UB some 50 years ago. But cosmology is not the only subject in the Urantia Book. It also contains information about God, other inhabited worlds, the afterlife of humans, an entire theocracy of spiritual beings and a reason for our existence. The Book is very logical and self consistent; reading it is an enormous intellectual and spiritual challenge. And some of its concepts could be very intriguing. Of course, revelation may not be absolute truth, but it is matched to the needs of those who receive it.

Notes: A million is one thousand thousand and is written as 1,000,000. A billion is 1,000 times more or 1,000,000,000 and a trillion is 1,000 times still more or 1,000,000,000,000.

On page 360, the Urantia Book says that the distance from the most remote system to the center of Orvonton is 250,000 light years. Yet the diameter of the Milky Way, a minor sector or one thousandth of Orvonton, is 100,000 light years. The 250,000 light year distance could be an error. It could be 250 million light years instead of 250 thousand light years. Astronomy says that the distance to the great attractor is 250 million light years. At this distance, the center of Orvonton at least fits with Astronomy's Great Attractor.

The name at the end of each picture caption is the source that allowed the use of the picture.

Fig 1. The sun photographed in ultraviolet light. The surface details show the ongoing intense activity on the surface. The curved arc was a major eruption from the Sun's surface. The Sun is almost one million miles across, while the Earth is only about 8,000 miles across. It takes about 8 minutes for sunlight to reach the Earth or eight light minutes (light travels at 186,000 miles per second). Naval Research Lab, Washington, DC

Fig 2. A drawing of the solar system showing the nine planets in a plane. The distances from the Sun and the planet sizes are are not correct, and are for illustrative purposes. The Earth is the third planet from the Sun. Jupiter, the fifth planet is the largest. Pluto, the ninth, is very small and its orbit is tilted to the plane of the other planets. Pluto is about 3 billion miles from the Sun.

Fig 3. A drawing of the headquarters of the Satania system, Jerusem and its surrounding worlds. Jerusem is about 100 times the size of Urantia. and each of the seven major satellites is ten times the size of Urantia, and each of the 49 smaller satellites is about the same size as Urantia. The

smaller satellites are mansion worlds. Jesusonian Foundation, Denver, Colorado.

Fig 3A. Sketches of a simple arrangement of inhabited worlds in a system, and systems in a constellation.

Fig 3B. Sketches of a simple arrangement of local universes in a minor sector, and of local universes in a spiral disk.

Fig 4. The UB administrative organization of a superuniverse. The organization deals with inhabited planets, not stars. Evolutionary human souls can make their way up through the organization to reach Paradise. Jesusonian Foundation, Denver, Colorado.

Fig 5. An Astronomical depiction of a top view of the Milky Way galaxy. It is 100,000 light years across. Astronomers have never been able to take a photo like this because we are inside the Milky Way. The two spiral arms can be clearly seen. The ball-like bulge occupies the central quarter of the galaxy. Sara Landry from "Galaxies" by Sierra Club Books.

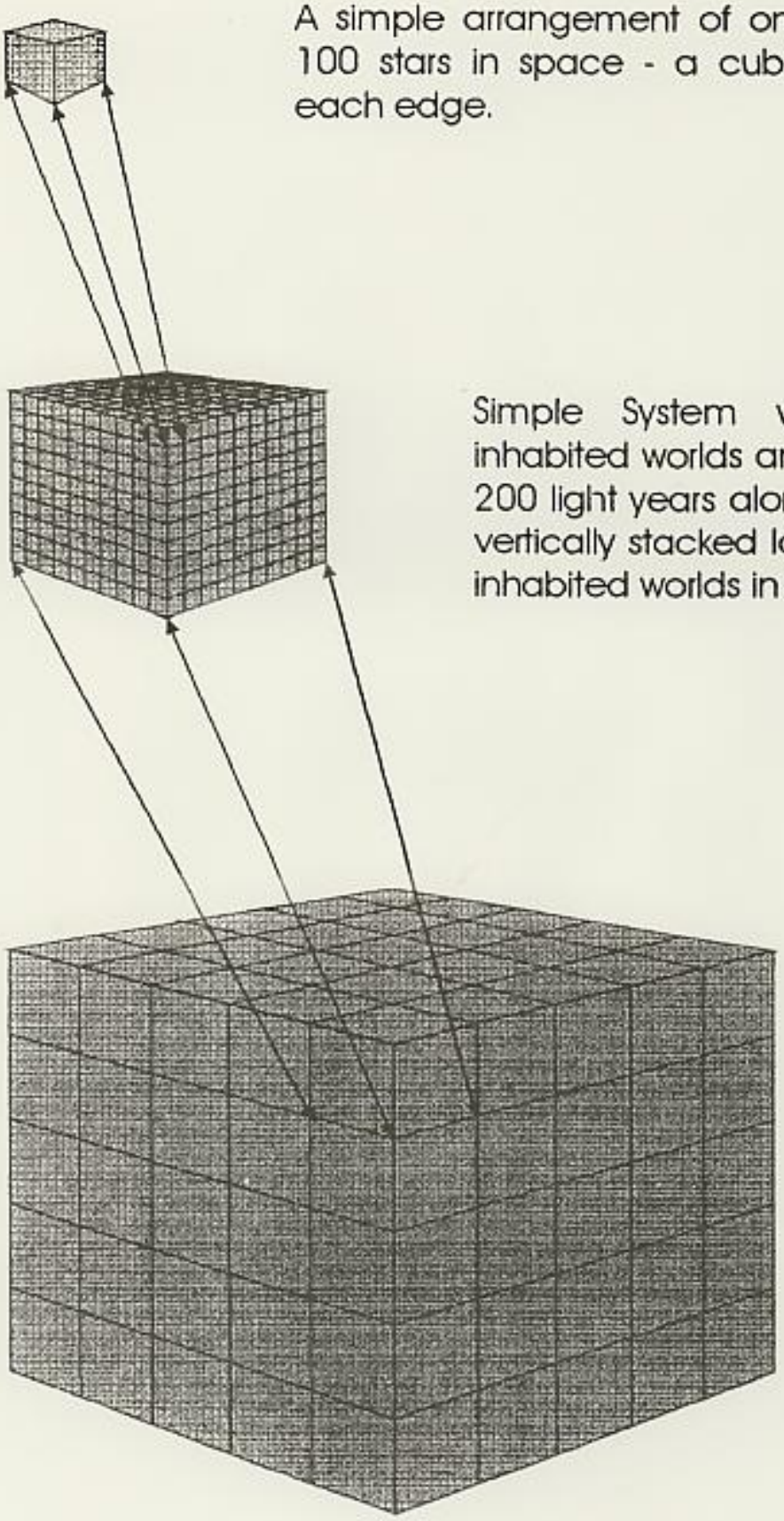
Fig 6. A photograph of the great spiral nebula in Andromeda. At the present time, Astronomy thinks it is about 200,000 light years across, and it is about 2.5 million light years away from the Milky Way. The spiral arms are faint but can be seen at the outer parts of the galaxy. The difference in light from different parts of the nebula make photography difficult. Hale Observatories, Pasadena, Ca.

Fig 7. An Astronomical plot of the local group of galaxies. They are almost in a plane. There are 2 large spirals, and the many small galaxies cluster around the large ones. The large circles show separation intervals of one million light years. There may be a void zone between the Milky Way and Andromeda, in which there appear to be no galaxies. Sara Landry from "Galaxies" by Sierra Club Books.

Fig 8. An Astronomical plot of groups of galaxies in our part of the universe. A group is shown as a sphere for simplicity. They all orbit around the Virgo group of galactic superclusters, which is 60 billion light years away. The number on each sphere is the relative distance above and below the supergalactic plane. The Urantia Book implies that the Virgo group is the center of a major sector of the superuniverse of Orvonton. All these galaxies are approximately in a flat plane; this agrees with the Urantia Book. Sara Landry from "Galaxies" by Sierra Club Books.

Fig 9. A depiction of Paradise surrounded by the central universe of Havona. Havona has a billion worlds arranged in seven rings. Two high rings of dark matter block Havona from view by the rest of the grand universe. Jesusonian Foundation, Denver, Colorado.

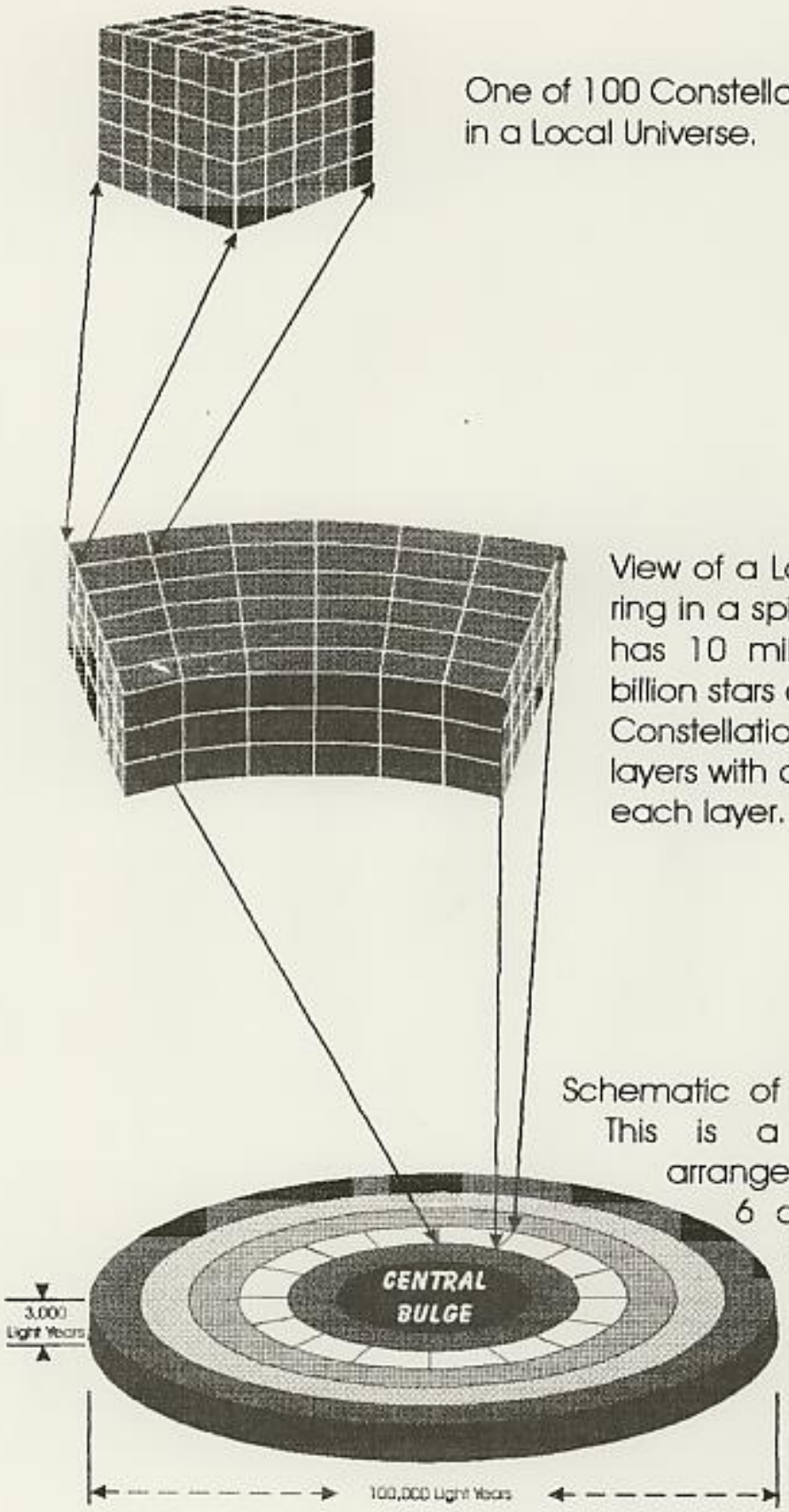
Fig 10. A depiction of the Master universe. This includes the grand universe and the four outer space levels which are now evolving. Urantia Foundation, Chicago, Ill.



A simple arrangement of one inhabited world and 100 stars in space - a cube 20 light years along each edge.

Simple System with 1000 evenly spaced inhabited worlds and 100,000 stars. The cube is 200 light years along each edge. There are 10 vertically stacked layers with a 10 by 10 array of inhabited worlds in each layer.

A Constellation with 100 evenly spaced Systems. The cube is 1,000 light years along each edge. There are 5 vertically stacked layers with a 5 by 5 array of Systems in each layer.



One of 100 Constellations in a Local Universe.

View of a Local Universe, one twentieth of a ring in a spiral galaxy disk. A Local Universe has 10 million inhabited worlds and one billion stars arranged into 100 Constellations. Constellations are in 3 vertically stacked layers with a 6 by 6 array of Constellations in each layer.

Schematic of disk of the Milky Way Galaxy. This is a Minor Sector. A simple arrangement is a disk divided into 5 or 6 concentric rings. Each ring is divided into 15 to 20 sections, and each section is a Local Universe. One hundred Local Universes are in the disk of a spiral galaxy. Only the second inner ring is shown divided since Urantia is probably in this ring.