The Immensity Of Gods Starry Heavens

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The great Eternal One has revealed Himself to the children of men through two living books. One of these prized volumes is that precious book we call the Bible. The other is sometimes called the book of nature. We shall speak of it as the book of the starry heavens. Both are the issue of the same Hand. Both speak to us of God. David wrote, "That Thy name is near Thy wondrous works declare." A modern student of the stars, Henry Norris Russell, director of Princeton Observatory, recently said, "In these troublous days, when so much seems to be shaken, happy is the man whose faith is fixed on the everlasting God revealed in His works no less than in His written Word."

A Trip Through Star Land

Let us take a celestial journey together, a sightseeing trip through star land, that will carry us far across the immeasurable expanses of space and amid the innumerable hosts of heaven that make up God's brilliantly lighted, swiftly moving, life-filled universe.

Bidding farewell to the sun, let us seat ourselves comfortably on a beam of sunlight for our 11,000,000-mile-aminute flight across the solar system. Three minutes of our journey pass, and we arrive at Mercury, where we find a planet 3,000 miles in diameter. Another three minutes slip away, and we are passing Venus, a globe practically the same size as Earth.

Two minutes later we are crossing the orbit of Earth. Leaving Earth, we travel for four minutes more to reach Mars, with its peculiar polar caps and its mysterious system of canals. There is definite reason to believe that there is vegetative life on Mars.

For the next half hour of flight, our interest is divided between the fascinating sight of Mars, with its two moons, and Jupiter, with its eleven satellites.

The thirty-six-minute flight from Jupiter to Saturn proves equally thrilling. The unique system of concentric rings surrounding the planet Saturn has long been an object of special interest to all observers of the stars.

The trip from Saturn to Uranus requires an hour and a quarter, although every minute carries us 11,000,000 miles on our journey. Upon arriving, we find a world sixty-four times the size of Earth, with four satellites to beautify and brighten its evening sky.

Rushing on in our flight across the solar system, we turn our attention next to Neptune with its one lone moon. But one and a half hours must pass before we cross its path. From our vantage point we now see in the distance the newly discovered world, Pluto. Speeding on for an additional one and one-quarter hours, we cross at last the orbit of this far-flung planet. To our surprise, it is about the size of Mars, and so distant from our world that when viewed through a giant telescope it appears only as a point of light.

But let us bring our imaginary rocket to rest for a moment. We have crossed our solar system in five and a half hours, and now find ourselves nearly 4,000,000,000 miles from our starting point, the sun. As we pause for a moment we consider that we have seen the movements of the nine planets and their twenty-nine moons which swing majestically around the sun. What a trip!

Let us now resume our flight to explore other systems beyond, and to study the wonderful arrangement and organization of God's great universe. First, and smallest in size, are the satellite systems. The planet Jupiter, with its eleven moons circling forever around it, provides a beautiful illustration of such systems.

Next in importance is the solar system. From our in space as we look at the nine worlds we have just visited, circling with precision around the sun as their common center, we are viewing a solar system.

Next we observe an order still higher, called sun systems. Many are familiar with Sirius, brightest star of the winter nights. To the unaided eye it appears to be a single star, but the telescope reveals it to be a double star, two great suns revolving around their common center every 48.8 years.

Polaris, the North Star, will serve as an illustration of the next higher order, the group systems. To the naked eye Polaris seems to be single, but with the use of the telescope we can clearly see that it is triple. Two suns in this group revolve around their common center every four and one-half days, while at the same time they, together with the third sun of the group, circle their common center of gravity every twelve and one-half years.

The Cluster Systems

Next in order of size are the cluster Systems. They are composed of thousands of suns, and wherever one goes, all go. They travel the high seas of immensity like fellow passengers on an ocean liner, moving in separate directions on its many decks, yet all bound in one direction.

And now let us consider an order still higher-the nebula systems, or island universe systems, as they are more often termed. Looking at the nebula in Andromeda through an ordinary telescope, we see what appears to be a great bright cloud in the sky about six times the apparent diameter of the moon. The one-hundred-inch telescope on Mount Wilson has resolved this so called cloud into a mighty universe of suns. Turning the world's largest telescope on the nebula in Triangulum, we see a similar sight. But little is left to the imagination. We are forced to the conclusion that we are viewing a mighty system of stars made up of billions of those lesser systems of which we have spoken. Scientists now agree that these spiral nebulae are vast Milky Way systems.

Photographing the heavens through one of the world's largest telescopes has now revealed the fact that there are at least 200 million of these island universes in God's great universe. Whether or not these most-distant nebulae are on the frontiers of God's universe remains to be seen. The new two-hundred-inch telescope on Mount Palomar may, in the next few months, push back the present far-flung frontiers of the universe another five hundred million light-years and double or even triple the number of known Milky Way systems.

The Heaven of Heavens

From the Bible we learn that God's throne is in the "heaven of heavens." The psalmist expressed a similar truth when he wrote, "The Lord hath prepared His throne in the heavens; and His kingdom rules over all." Long ago the apostle Paul revealed a knowledge of these same truths when he wrote: "Through Him the universe is one harmonious whole." Colossians 1:17, Weymouth. Such a scientific fact could have been known in Paul's day only through inspiration.

As one stands gazing into the immeasurable depths of space, seriously meditating and earnestly endeavoring to comprehend the full grandeur and glory of God's great universe, he cannot but share the emotions of David as he exclaimed: "When I consider Thy heavens, the work of Thy fingers, the moon and the stars, which Thou hast ordained; what is man, that Thou art mindful of him? and the son of man, that Thou visits him?"

The words of Christ are comforting indeed as we sense anew man's painful insignificance: "Are not five sparrows sold for two farthings, and not one of them is forgotten before God? Fear not therefore: ye are of more value than many sparrows."

How can any intelligent being stand gazing in wonderment at God's colossal universe, where millions of island universes appear like a mighty illuminated armada cruising up and down the high seas of immensity, without experiencing in his soul a feeling of reverence and respect, a sense of fervent devotion and humility

Charting the heavens to the incredible distance of a billion light-years, the survey has expanded known space at least 25 times. New comets and asteroids have shown up within our own solar system. We know more of our home galaxy, the Milky Way. Hundreds of millions of other galaxies, near and far, have been mapped.

Survey Changes Concept of Universe

But it is in the far reaches of space, regions never before charted, that the Sky Survey has made its most significant and exciting discoveries. Clusters of star galaxies, the largest units of matter known, exist there by the tens of thousands. When our work began seven years ago, scarcely three dozen such clusters had ever been seen. To astronomers of the Mount Wilson and Palomar Observatories who have worked on the Sky Atlas, this discovery that clusters of galaxies are all but innumerable has provided the greatest of many thrills. It has changed our whole concept of the universe, proving it far more complex than we had thought.

To appreciate what these clusters mean, we must understand what galaxies themselves are like. As we look upward on a dark night the stars seem numberless. Yet in the entire heavens only about 6,000 stars are bright enough or near enough to be within range of the human eye. Our galaxy contains approximately 100 thousand million Suns. To spend one week exploring every solar system in our galaxy would take 3,000 million years. If you shrank the Milky Way galaxy down so that the Earth was only one millimeter wide than the galaxy would be 75 million kilometers wide.

How long would it take to explore an entire galaxy? Let us suppose that you were to take one week exploring every star in the galaxy and the Solar System that orbits it. The Milky Way galaxy contains 150 thousand million stars. If each star had a Solar System and we spend one week exploring it, it would take over 2,884 million years to complete. To explore all the galaxies in our Local Group [17 galaxies] this way would take almost 10,000 million years. Some large clusters of galaxies like the Virgo cluster contain thousands of galaxies. Exploring such a super cluster fully would take a hundred times longer.

Local Group Of Galaxies

Galaxy	Diameter	Distance	Suns	Years
Milky Way	120,000	0	150,000,000,000	2,884,615,385
NGC 147	7,800	2,220,000	1,000,000,000	19,230,769
NGC 185	9,500	2,220,000	1,000,000,000	19,230,769
NGC 205	14,000	2,220,000	10,000,000,000	192,307,692
Andromeda	170,000	2,220,000	300,000,000,000	5,769,230,769
M 32	6,800	2,220,000	1,000,000,000	19,230,769
SMC	16,000	196,000	2,000,000,000	38,461,538
Sculptor	7,500	280,000	3,000,000	57,692
IC 1613	13,000	2,220,000	300,000,000	5,769,231
Triangulum	59,000	2,720,000	10,000,000,000	192,307,692
Fornax	20,000	612,000	20,000,000	384,615
LMC	26,000	173,000	10,000,000,000	192,307,692
Leo I	5,800	750,000	3,000,000	57,692
Leo II	4,200	750,000	1,000,000	19,231
Ursa Major	7,800	222,000	100,000	1,923
Draco	3,300	250,000	100,000	1,923
NGC 6822	5,500	2,150,000	400,000,000	7,692,308

[Diameter = Light Years, Distance From Earth = Light Years]

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Clusters Of Galaxies

Galaxy Cluster	Diameter	Volume	Distance
CANES VENATICI I	9.78	3918.78	16.30
CANES VENATICI II	5.43	671.94	24.45
CETUS I	7.06	1476.26	24.45
CETUS II	7.61	1843.81	38.03
OMA I	5.98	894.36	25.54
ERIDANUS	13.04	9288.96	27.17
FORNAX I	6.52	1161.12	39.12
GRUS	6.52	1161.12	35.32
MESSIER 101	5.43	671.94	9.24
MESSIER 66	2.72	83.99	20.10
MESSIER 81	5.98	894.36	5.43
MESSIER 96	5.43	671.94	21.19
CENTAURUS	7.06	1476.26	8.15
PAVO-INDUS	12.50	8175.54	39.12
SCULPTOR	3.26	145.14	3.26
URSA MAJOR N	6.52	1161.12	42.92
URSA MAJOR S	7.61	1843.81	40.75
URSA MAJOR X	5.43	671.94	38.03
URSA MAJOR Y	7.06	1476.26	35.86
URSA MAJOR Z	5.98	894.36	29.88
VIRGO E	8.15	2267.81	32.60
VIRGO III	11.95	7154.86	28.80
VIRGO S	1.63	18.14	32.60
VIRGO V	7.06	1476.26	43.47
VIRGO W	2.17	43.00	49.99
VIRGO X	9.24	3301.26	39.12
VIRGO Y	9.24	3301.26	33.69
VIRGO Z	4.89	489.85	43.47

[Diameter and Distance = million light years]
[Volume = billion cubic light years]