

## **The Great Beyond just gets clearer**

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Whether we are religious believers or non-believers, we are continually driven to broaden our view of the cosmos as newer telescopes are invented, and scientists work to assimilate ever larger portions of knowledge about our universe. In 2005 work began on what will be the largest instrument of its kind, called the Great Magellan Telescope. When it is completed in 2019, it will contain seven giant mirrors, a light-gathering capacity stretching out to 28 meters in diameter, and it will be housed in a structure 200 feet high atop the dry clear air of the Chilean Andes. It is expected that many stars that are now scarcely visible dots, will come into much sharper view. Moreover, astronomers will be able to detect a multitude of planets orbiting these newly visibly enhanced stars.

But most of us are not astronomers and we will not have the privilege of using the Great Magellan Telescope. Yet we have the human capacity to be filled with awe and wonder at seeing the night sky. Cast your view skyward tonight and see that milky band crowning the magnificent orb of our night sky. That's the Milky Way, our spiral-shaped galaxy. But can we call it "ours"? We inhabit a minor planet, part of an insignificant solar system, away out on the edge of that whirling mass of stars.

See that bright one, over there on the western horizon? That's Sagittarius, the Archer, the axis around which our immense galaxy is whirling at a tremendous speed. But even at this incomprehensible velocity, each rotation takes 200 million years. Compare this with the mere one million years humans have inhabited the earth. Now, let's count the stars in our galaxy, the Milky Way. We'll need 3000 years. But even then, we will hardly have begun to count the stars, for our galaxy is only one among a half billion galaxies within range of our present telescopes. As each new and more powerful telescope was invented since that used by Galileo in

1600, always there are more and more galaxies to be discovered----millions and billions, extending far beyond our imaginations.

Let's look at something closer to home. See Andromeda there almost overhead. Notice that faint star cluster nearby. That's M31, our nearest spiral galaxy, our neighbour. It would take one and a half million years to send a radio message to it. And, of course, one and a half million years to receive a message back.

But, this talk of size overwhelms and humbles one. Let's talk about our home, our earth, and our own checkered past. Consider the million years that humans have been on earth, or the 500 million years that flora and fauna have been on earth, or the 5 billion years of the earth's age. Still quite young really, in comparison to the 13.5 billion years since the big bang.

Now shut your eyes and think of these last million years, these years of humankind. Imagine this time span as a body of water stretching out before us, ten miles across. We stand on the shore. Toss this little pebble. See there, where it hit the water, twenty feet out... the discovery of America, or toss it a little farther, one hundred feet out...the beginning of the Christian era.

Now skim this flat stone 250 feet, out to the pyramids or maybe even 500 feet, out to the last ice age. Raise your eyes. Look way, way out, ten miles across the water---our first humans---our Adams. Ten miles! But only twenty-five feet away, a mere four or five centuries ago, nothing I have said so far would have been accepted. Indeed, those who suggested such ideas were often labeled as heretics and risked torture or even execution on that account. But let us not look back too long, nor too longingly, on the painfully slow evolution of the past, fossilized by paralyzing philosophies and dogmas of a concept of life meaningless to many of us today. What a privilege for us, who are presently alive to experience the vastness of time and space. We humans, whether religious or non-religious, have many reasons to accept life with gratitude, awe and wonder.