



## Feature Presentation:

### The "Philosophy" of Astronomy

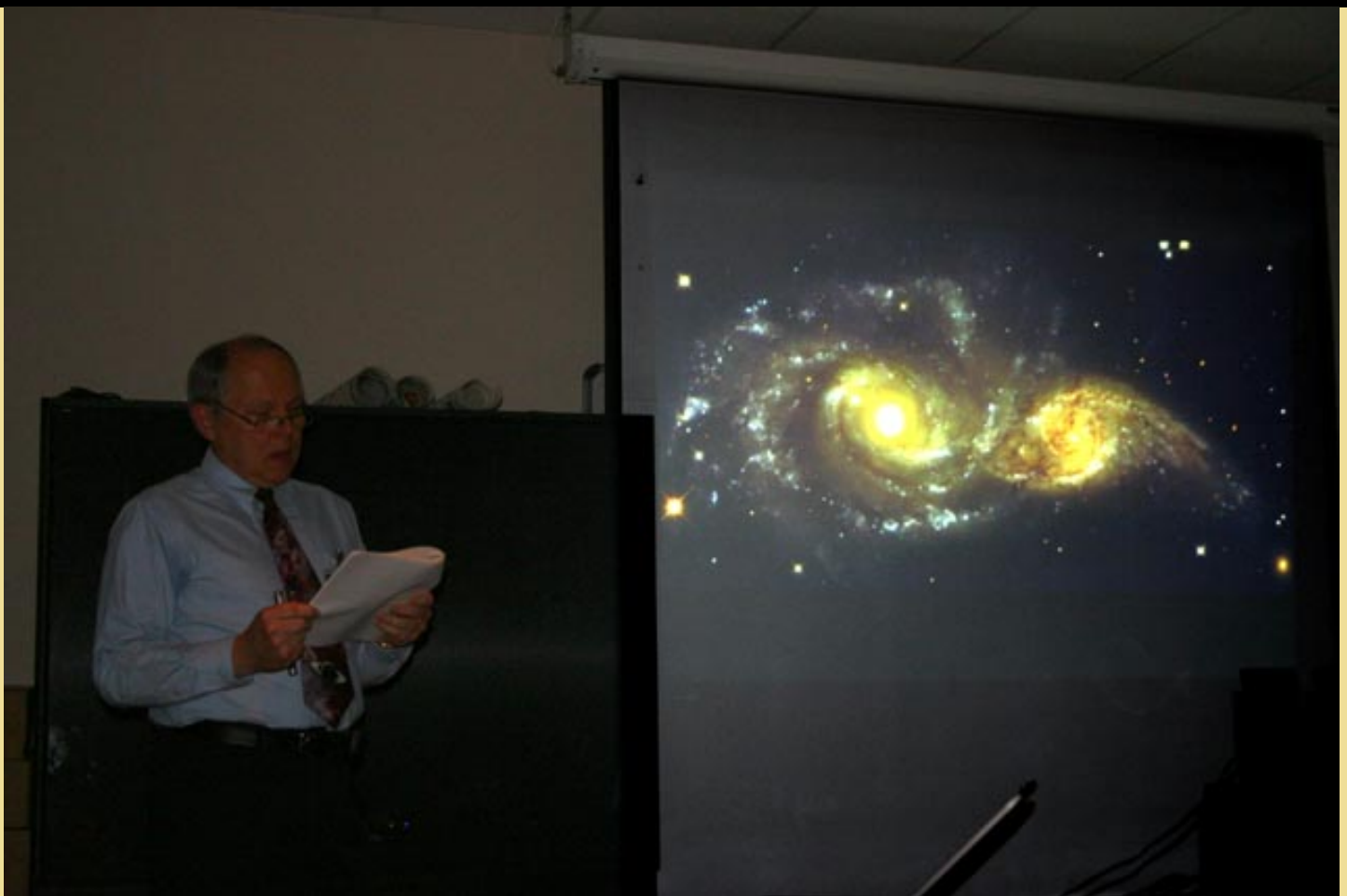
Larry Owens



Set to the "space music" of Jonn Serrie, Larry's presentation started with an imaginary journey to the surface of the moon. The journey was not to explore the moon itself, but to "experience" the Earth as it really is, from the surface of another world.



The journey and the music continued as Larry plotted a course for deep space, taking his audience to amazing "places" in the cosmos. We were reminded not to "label" the beautiful images on the screen with Messier or NGC catalog numbers, but to treat each as a photograph of a "place" in the cosmos, as real as Atlanta or the CE Visitor's Center.



The presentation's main message was to show that the realities of our amazing cosmos, and the realities of our daily lives here on Earth rarely if ever cross paths. Yet, the Milky Way is just as real as a pickup truck. If we "experience" the cosmos with our telescopes, and gradually bring the universe into our daily lives, we can change our lives in the same way that views of Earth from space changed the lives of the Apollo astronauts when they traveled to the moon. Most importantly though, Larry informed us that once we have achieved this kind of cosmic "awakening", we've also acquired an obligation to share this magnificent experience with others through amateur astronomy. The presentation compelled us to share our "experiences" in the cosmos whenever we can, because as amateur astronomers, we can change lives.

Larry left us with a thought: Imagine the kind of world we would live in today, if everyone could travel to space, and see the Earth as it really is; a tiny blue planet suspended as if by magic in the great black void of space.

[Here's a transcript of Larry's presentation](#)

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# The "Philosophy" of Astronomy

by Larry Owens

Our presentation tonight is called the "Philosophy" of Astronomy. The word "philosophy" is used because, in a very real sense, our philosophy of life is linked to the heavens. It is the place of myth, imagination, faith and reality.

*If we are willing to listen*, astronomy can give us a perspective on life... and a perspective on reality... found in no other field of study. If you can *fully embrace* the vast and wondrous universe that WE are a part of... it can enrich your life beyond measure.

For some, the catalyst for a kind of "universal embrace" is a trip to the moon. As you may know, space travel can be a very powerful "philosophical" influence, often making poets out of fighter pilots and philosophers out of scientists. For others, it's a trip to a dark site with a good telescope that sparks a kind of enlightenment or connection with the night sky.

What I hope to share with you tonight is a place that I have found... and a journey that I have taken and continue to take... that leads to a special connection with the stars and an alternate perspective of our tiny Earth. This is a perspective that I try to carry with me each day and one that I hope to carry with me the rest of my life. My hope is... that tonight, you will be inspired to take this journey as well.

How do we start our journey? Obviously we can't all thumb a ride on the next space shuttle, so our journey will have to start a bit more modestly. We can begin with a bit of basic information about our absolutely amazing universe... a bit of experience at the telescope... and a dash of imagination.

Let's use our imagination a bit now.

I want everyone to take a deep breath, close your eyes and clear your mind... everyone.

We're going to take a journey.

Imagine that you are now an astronaut. You've just completed the rigorous training required and you've been lucky enough to get assigned to a manned mission to land on the surface of the moon. You're in space now. The trans-lunar injection and docking went well, all systems are "go" and you've successfully landed in the Sea of Tranquility, 238,000 miles from home. You've made it! You're actually on the surface of the Moon.

You've "egressed" the LEM now and you're standing on the surface. You can hear the Oxygen flowing from your life support system, you can hear the rustling of the fabric of your suit as you move your arms and as you close your fingers together you can feel the resistance of your heavy gloves, all protecting you from the vacuum of the Moon's non-existent atmosphere.

As you look down you can see the finely powdered gray soil of the moon clinging to your boots, and the foot prints you've made in the soil in the short time that you've been here. Now, slowly, you look upward... past the gray lunar mountains in the distance and up into the pitch black sky of the moon. There are no stars, just a black sky... but one thing catches your eye... you react instinctively with a sense of awe and wonder as your eyes begin to capture intricate details... a great blue planet, suspended in space, as if by magic. A brilliant blue marble cast against a black velvet sky.

Soon the reality hits you. That is YOUR home and, as far as we know, the home of everyone who has ever lived. The home of everyone you have ever known, and except for this short excursion to the lunar surface, the home of all of your experiences, your problems, your wants and desires, your aspirations and dreams; a tiny oasis in the great void of our solar system... called "The Planet Earth".

Now, I know how hard it may be to return from such a beautiful setting, but let's return to Charlie Elliott now.

If you made the journey, this is where you were.

Sometimes you can look at images of the Earth from the Moon and it's NO more than a pretty picture; something you've seen before. But at other times an image like this can literally bring tears to your eyes.

It's that teary eyed place that we are looking for here.

Let's look at another image. Does anyone recognize this area of the sky? Everyone say "yes" ... Do you see anything unusual or out of place?

Let me ask you this question. What would the sky look like if we traveled 4.25 light years in the direction of the star Alpha Centauri? Alpha Centauri is our closest neighbor.

This is how the stars appear from our nearest solar system. Alpha Centauri is only 4.25 light years away, and as you can see, there is an extra and very ordinary first magnitude star positioned between Perseus and Cassiopeia that we don't normally see from earth.

Any guesses as to the name of this star? It's our sun.

It's not even the brightest star from this perspective. There are in fact, 7 other stars that would appear brighter in our neighbor's sky. So, I'm sorry to say that the magnificent and brilliant sun you see in the skies every day is just an ordinary star, on the edge of an ordinary galaxy, in a universe of billions of others.

As you enjoy images of a few of the billions of galaxies that exist in our universe, I want you to look at each image differently than you normally do. Don't critique the quality of each image or think of it as an astronomical "object". I want you to concentrate on what you're really looking at... billions of stars and perhaps thousands of civilizations just like our own. Think about the lives that may be led there, and the science and technology that may be before your eyes in each image. I want you to forget about the Messier and the NGC catalog and think of each image as a "place" as real as Atlanta or Covington or the place you call home.

Now, as you watch these images and listen to the music, let me remind you of a few basic facts about our cosmic home. Please remember, these are facts, as real as this table or the floor I'm standing on.

In a "cosmic" sense, we live in a little neighborhood called the Milky Way galaxy. The Milky Way is an average galaxy as far galaxies go. It contains by some estimates as many as 400 billion stars, many like our sun. Pause now and think about that for a minute; 400 billion stars... and as you think about that, I want you to visualize a beautiful sunrise, with the beautiful amber sun rising above the horizon perhaps with a morning mist drifting between the trees... Now multiply that rising sun by 400 billion.

That's what a galaxy is...

I realize that you may be having a bit of trouble imagining 400 billion sunrises. The very number "400 billion" is incomprehensible.

To give you a better idea of how much 400 billion really is, let's think of it in terms of time. Let's imagine that we've mastered physics to the point to where we can travel to any star in the Milky Way instantaneously. Our goal is to visit every star in the Milky Way. Now, we don't want to spend much time at each star because we know there are "miles to go before we sleep". Let's spend one second at each star. How long would our journey take? Any guesses?

The answer is 12,675 years; longer than recorded history on Earth. That's doing nothing at all but visiting one star each second, for every second of time for 12, 675 years.

Now let's take that a bit further. Assuming you live to be a nice mature age of 86 like my father here, how many generations of travelers do you think it would take to complete our journey?

It would require 147 generations of travelers, doing nothing but visiting one star per second, every minute of every day of each of their lives. Think of all of the experiences you've had in life, from when you were a child, through young adulthood in high school, and when you got your first job, when you met your wife, and all of the experiences you've had together - now multiply that times 147. Our little cosmic neighborhood is v-a-s-t!

Now, I want you to hold on to your hats, because if you'll remember, we're talking about the Milky Way galaxy alone. Take ALL of that



complexity and ALL of that incomprehensible magnificence and vastness, and multiply that hundreds of billions of times more, and you have our universe... there are literally billions of galaxies, just like our Milky Way existing throughout the universe. Indeed, there are a billion, billion stars in our universe, just like the one you see every day in the sky above us, giving us warmth, energy and life.

We are indeed, a grain of sand on the shores of the cosmic ocean.

Have you been keeping in mind all of this time that these are established facts? No fantasy here. As hard as it may be to comprehend for all of this, these are hard facts, as surely as I am standing before you now.

Now let's think about how we deal with all of this complexity psychologically, and the differences between our *perception* of reality and our *knowledge* of reality.

I've said nothing new to most of you tonight. We've all learned about the universe in school and most of us have read these facts many times especially amateur astronomers. Astronomy is "factually" very familiar to most of us.

But do these facts *seem* real to you? Does the Andromeda galaxy *seem*, as real a "place" as Covington, GA? We know it is, but does it FEEL like a real place?

Do we take the feeling, that the Earth is a tiny blue marble floating in the blackness of space, with us, as we go through our daily lives? It is after all... true.

Unfortunately, most of us would answer "no" to that question.

For me, the places that I *experience* become part of what I readily accept or perceive as reality. The place where I live, the places I've visited, the place that I work. Though I know of the existence of many other cities, if I haven't had some physical experience there or at least FEEL that I've been there through some other means, it seems LESS real somehow. I know that Mexico City exists, but having never been there and not knowing much about it, makes it seem less real than

## Atlanta.

The Apollo astronauts who traveled to the Moon in the late 60's and early 70's often noted that their most profound moments were spent gazing at the tiny Earth, suspended in the blackness of space. Before they left the ground on their magnificent Saturn 5 rockets, they knew that Earth was a mere planet in orbit around an ordinary star. Yet the experience of actually seeing it as such, added something to their perception of their place in the universe, and it changed their lives.

Shuttle astronauts often talk of a new found perspective on life, after seeing the surface of the Earth from space, understanding and perceiving as reality now, facts that they had known since childhood.

What is it... that makes these experiences so profound?

Let's look at an ordinary example of something we experience in life. Let's look at how we would experience traveling to a city in Europe on vacation for example. You anticipate and plan the trip for months. You may even mark off the days on a calendar and when you first arrive, you are *very excited* to be there. You smell the aroma of the local cuisine, you feel a chill in the air if it's cold there, you visit the local attractions, you ride public transportation and you meet and talk with the people who live there. But ABOVE ALL, you experience the excitement of being there. You're *excited* about seeing sights you've only read about. You experience joy, excitement and sometimes fear and uncertainty, but you've come to know this city using all of your senses and your emotions.

Scientists tell us that the experiences we remember most vividly, are the ones charged with excitement and emotion. The connections made within the human brain become more *permanent* when experiences occur under emotional circumstances.

Compare your last experience getting coffee at the drive-thru at McDonald's, with the birth of your eldest child...

There was certainly, no lack of human emotion when the Apollo astronauts blasted off to the Moon. These guys were excited about the chance of walking on the Moon, and this was contrasted by the

fact that they knew they may not make it back to Earth alive. THAT was one emotionally charged trip to say the least. So I would imagine that every minute spent in space... is as clear in their minds today, as it was then.

Up to now, we've been talking about "physical" experiences. But there are many other types of experiences that can result in profound changes to our perspective on reality. We can have a vivid religious experience... or we can have vivid imaginary experiences, like the ones we feel while reading a good book or watching a good movie and hopefully like the experience you had earlier this evening when you traveled to the moon.

I think we can all agree that vivid, detailed and clear experiences contribute to our everyday "SENSE" of reality. We established earlier that most of us seem to have two categories of reality. Our technical reality, based on knowledge but very little experience, and our "SENSE" of everyday reality... the feeling we have about familiar places and things that we get from the repetition of being there everyday or from vivid experience.

Now what happens when some vivid, absolute experience occurs that is *vastly different* from your everyday "SENSE" of reality?

We cited the example earlier where Apollo astronauts had profound experiences... by simply viewing the Earth suspended in space. They had known THAT fact since they were children, but we are definitely NOT accustomed of thinking of our Earth floating in a black void. We're too busy thinking about how bad the traffic is going to be on that commute home tonight, or whether or not we'll have the money to pay that bill.

So, you embrace this VIVID experience as reality because it's absolute... it is amazing... it is overwhelming... and it is FACT. In so doing... it changes the very framework of your everyday "SENSE" of reality. After this experience you may begin to think of some things as less important, other things more important, or perhaps you will see things from a PERSPECTIVE that you would never have imagined before.

What does it do to your foundation of assumptions about life? *It makes your understanding of reality MORE COMPLETE.* It enriches the very foundation of your understanding of ALL THINGS.

So, what are the ingredients for a profound life changing experience?

- We must have a vivid absolute experience with emotion, excitement and enthusiasm
- The experience must show us something to be true... that is vastly different than our everyday sense of reality.

It can be something we've known for years, but something that has never been placed into our everyday sense of reality.

Now, all of this is leading up to something. You'll notice that we haven't mentioned amateur astronomers for a while. Well, now is the time.

Amateur astronomers, whether they know it or not, possess the raw materials to enlighten, to amaze and even to change lives.

The science of astronomy... as you know, is literally -filled- with absolute facts that are far beyond our everyday sense of reality. But what's more interesting is that astronomers and amateur astronomers possess the TOOLS and the KNOWLEDGE to actually offer both vivid physical experiences and imaginary experiences of these great wonders.

With our telescopes we can present... to anyone who cares to look, great vistas filled with suns, great galaxies at unimaginable distances... wonders far greater than the tallest mountains or the deepest seas on Earth... YET as real as the floor that supports us right now.

When viewing the wonders of our universe through a telescope, *enthusiasm*... and a willingness to keep reminding yourself of the REALITY of what you're looking at, is AS essential to your quest, as a good eyepiece. STUDY your target. Remember that EVERY STAR in

your field of view is a sun, very much like our sun... Those stars may even have planets... and LIFE.

Pick out a star in your field of view... and take an imaginary journey; feel the warmth of that star's light on your face.

Remind yourself of the billions of suns required to produce the light of a single galaxy, and the possibility of abundant life with perhaps even CIVILIZATIONS within your field of view.

But don't leave these experiences at the dark site! Take them with you as you go about your daily lives. See the Earth from space as you watch clouds drift by your window at work. Think of what those clouds would look like from space. After all, space is only 62 miles above our heads – practically a suburb of Atlanta.

With practice... I guarantee... unless you travel to space frequently, it WILL change your life.

But what's MOST IMPORTANT to know... is that NOT ONLY do we have the capacity to change our own lives through astronomy, but we can INSPIRE OTHERS to look at the stars. We can inspire others to see the stars and distant galaxies in the universe, as "places" as REAL as Atlanta... or as real as YOUR home town.

Just imagine the kind of world we would live in today... if E-V-E-R-Y-O-N-E could travel to space and see the Earth AS IT REALLY IS... a colorful... brilliant, yet tiny planet... suspended in the great black void of space.

So in closing, I would like to ask each of you to TAKE THIS JOURNEY... don't just live in Atlanta, live on a tiny planet in our solar system, live in the Milky Way galaxy. When you return, gather your telescopes... go forth... share astronomy, share your experiences with everyone you can...

Ladies and Gentlemen... as amateur astronomers with this unique perspective... you have the POWER to CHANGE LIVES! Tonight, I am asking you to do just that.

Thanks for attending!