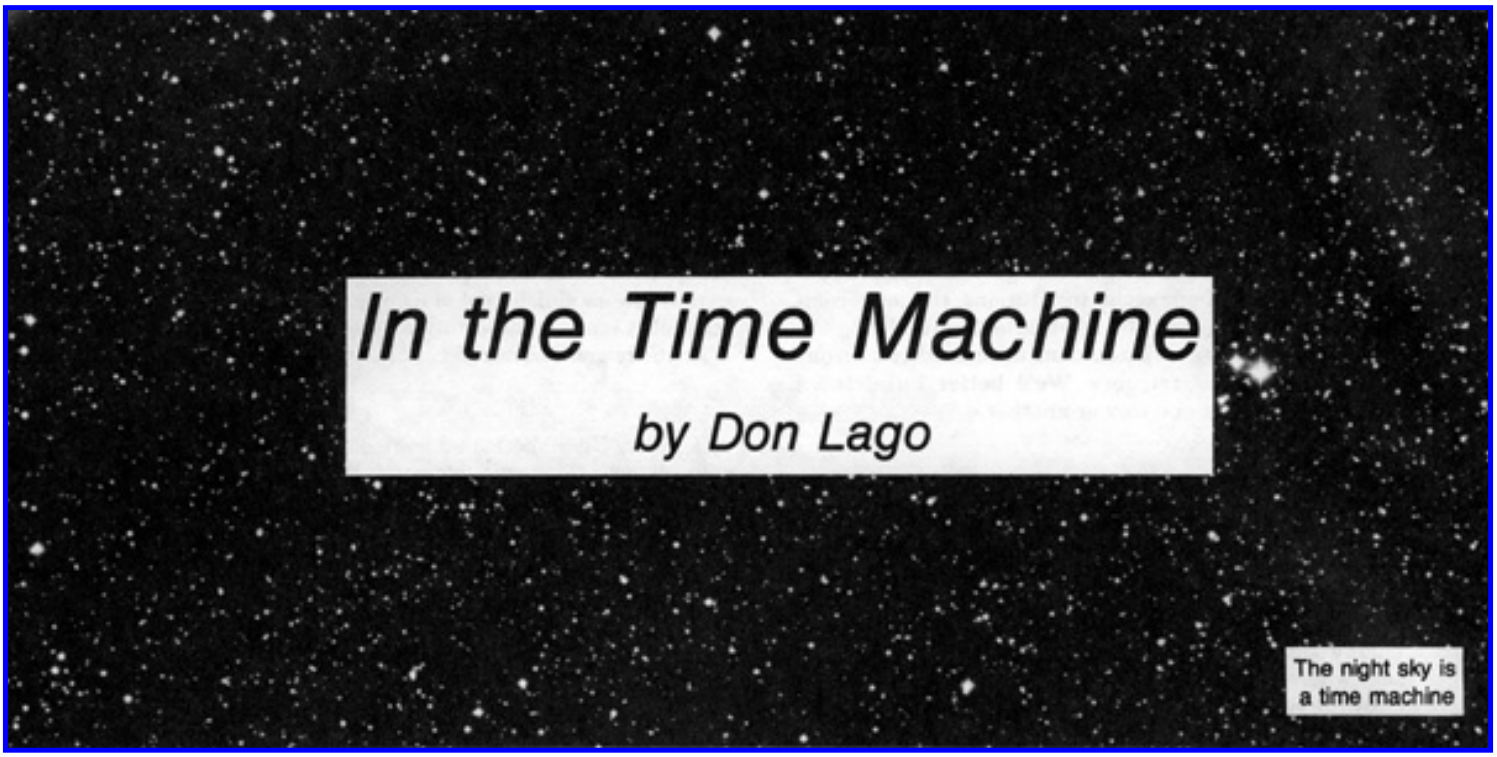
North American AstroPhysical Observatory

North American AstroPhysical Observatory (NAAPO)

Cosmic Search: Issue 6
(Volume 2 Number 2; Spring (Apr., May, June) 1980)
[Article in magazine started on page 30]

In the Time Machine

By: Don Lago



The night sky is a time machine


Lago

One of the favorite themes of science fiction writers is that of the time machine. In the years since H. G. Wells launched the idea we have been offered hundreds of variations of the voyage through time. Sometimes a misunderstood genius discovers the secret on his own, and sometimes humanity inherits the secret from a more advanced civilization. Almost invariably the stories involve a strange-looking machine and a certain amount of scientific-sounding mumbo jumbo to explain how it works. The time machine makes possible all sorts of adventures and social commentary, as well as brain-teasing paradoxes.

"Astronomers are cosmic archaeologists, digging through the ruins of a previous universe."

Beyond these specific story possibilities seems to lie a more basic fascination with the idea of dissolving the linear, moment-by-moment flow of time in which we live. These tales

allow us, if only in imagination, to erase the boundaries that hold us fast in the present moment, boundaries that make us exiles from all of our past, and wander so freely through the past and future that we almost feel they belong to us.

Yet one doesn't need to turn to science fiction to find a time machine. You only need to step outside and gaze into the starry night. We live inside a time machine that is the universe itself.

The universe is a very simple time machine. It doesn't involve any strange and complicated machinery, only immense distances. We don't have to leave the present to travel into the past, for the past travels to us.

When we gaze into the depths of space, we are looking into the equally endless depths of time. When we see stars scattered across the sky we are also seeing stars scattered through time. We see the stars only as they were long ago, for space is so immense that starlight, even traveling at 300,000 kilometers per second, takes years to reach Earth. The farther away the star, the farther away in time we see it. We see the closest star, Alpha Centauri, as it was four years ago. We see the Andromeda galaxy as it was two and a half million years ago. And when, through telescopes, we spot the most distant objects in the universe, we are looking billions of years into the past. Even our own sun is seen through the warps and wrinkles of the time machine: we see it as it was eight minutes ago. The past has not been lost; the time machine contains it all. In the night sky one can see thousands of different moments of the past all at once, and through the telescope one can see billions. Here the whole of the past, from minutes ago to billions of years ago, exists simultaneously. Our days reside in the midst of a billion yesterdays.

Strangely, though man can see the past of the universe, he cannot see its present. We have no way of knowing what the universe beyond Earth is doing at this very moment. The present moment is trapped in the time machine and can only slowly drift towards Earth. We will have to wait four years to find out what Alpha Centauri is doing right now, and we will not live anywhere near long enough to find out what Andromeda is doing. For all we know all the other galaxies in the universe might have blinked out of existence two million years ago. All the other stars in our galaxy might have ceased burning three years ago. Our own sun might have blown itself apart seven minutes ago. Yet if you looked at the sun it would still seem perfectly-normal—at least for a few more moments.

Astronomers know nothing about the universe that surrounds us right now; they can study and talk about the universe only as it was long ago. The problem with living in a time machine is that our image of the universe is badly outdated. Of some galaxies we have only baby pictures, though they are now fully grown adults. We can look at a star and never guess that we are seeing only a ghost. If you could follow that ribbon of starlight back to its source

you would find only the corpse of a star that had been dead for a thousand years or more. Yet that star still lingers in the time machine, shining brightly, haunting space and the mind of man.

Astronomers are often careless in speaking about the universe. They will say: "We have discovered a quasar ten billion light-years away," when they should say: "We have discovered a quasar that existed ten billion years ago." There's no telling whether that quasar still exists, or what it has become in the meantime. Astronomers are cosmic archaeologists, digging through the electromagnetic ruins of a previous universe, one that went on to become the totally unknown universe we live in today.

The universe as it is today will only slowly be revealed to Earth, and of course, by the time it has been totally revealed it will have become a very ancient universe. The reports will trickle in from the stars, beginning with Alpha Centauri four years from now.

"We don't have to leave the present to travel into the past, for the past travels to us."

Any race that tries to communicate across space is also trying to communicate across time. Its message will probably not be heard by its contemporaries, but only by individuals yet unborn. It is sending a message to the future.

Light seems to only crawl between the stars. Years and decades intervene between two races trying to share their lives with one another.

In this time machine the living can only eavesdrop on the past and call out to a future they will never see. Civilizations cannot share this moment of life together. They can only look into each other's yesterdays, meeting each other's ancestors. They can only send a bit of themselves to each other's tomorrow—to each other's descendants. Those who send a message know they are trying to communicate with minds that do not yet exist.

If we began broadcasting in a massive way tomorrow, our messages may first be heard by individuals who now are only genes stored in other bodies. We will be gone by then. We will be dust. They will be meeting a ghost. Our messages will wander on through space, and one by one, century by century, races will learn that somewhere, far away and long ago, on a planet that called itself Earth, there lived a generation of humans who called out to the stars. Two and a half million years from now, races in Andromeda will look deeply into the cosmic time machine—and they will see us. We will seem very remote to them, here in this ancient

moment of time. Yet in another sense, a profounder sense, a truer sense, they will welcome us as their contemporaries. We will have shared together this strange, fleeting moment of light and consciousness deep in the center of a midnight with no beginning and no end.

A biographical sketch for **Don Lago** appeared in the Spring 1979 issue of **COSMIC SEARCH** (vol. 1, no. 2) in connection with his article "Circles of Stone and Circles of Steel". Another article by Lago appeared in the Fall 1979 issue (vol. 1, no. 4) entitled "A Hymn to Life in the Universe".

[Although the biographical sketch was not reproduced with this article in the magazine, I have reproduced it below from a previous article. — *Webpage Editor*]


Lago

Don Lago, 22, resides in Missouri. He has attended college briefly. Beyond that, in his own words, "My occupation is finding out what people who have lived before me have discovered and thought about the world, and occasionally I have an interesting thought of my own. This is a full-time job in itself and doesn't leave much time to waste on such things as making money, which I am doing at a bookstore.

"I was born on the planet Earth (let's not be provincial), and plan to spend most of my life there. I find it very exciting to be alive when man is first searching for other minds in the universe, and hope to live long enough to learn what they have thought about the cosmos."

HOME