From: Friedemann Freund <friedemann.t.freund@nasa.gov>
Subject: **Re: Your Book Chapter**
Date: March 19, 2013 9:13:01 PM PDT
To: Roger N. Keeler <rnkeeler@verizon.net>
Cc: Carl Gibson <cgibson@ucsd.edu> , Langhoff, Stephanie R. (ARC-D) <stephanie.r.langhoff@nasa.gov>
Reply-To: friedemann.t.freund@nasa.gov

Dear Norris,

Let me begin by tracing back how this all began. Last year, after Mino's passing, Pete Worden encouraged me to organize a Symposium in Mino's honor. It was to be hosted by NASA Ames but, for legal reasons, was not to receive any government funding – zero $$$. All what Pete Worden could do is to provide Building 3 in the NASA Ames Research Park as the meeting venue. All other costs for the Symposium were on Hisako and me.

Then I started to contact Mino's friends all around the world - including you - whether they could come to the Symposium. Over the course of just a few weeks I was able to assemble a diverse program with high-quality science and engineering talks to be given by speakers from Zürich and Geneva, Switzerland, from Karlskrona in Sweden, from London, from Lima, Peru, from Minnesota, Maryland and New York. Everyone whom I invited was willing to pay for his or her own travel, even from overseas - out of love and respect for Mino.

Unfortunately you had to decline, but instead you highly recommended Carl Gibson. Though the program was already full, I invited Carl. He accepted under the conditions that I would cover all his expenses. Hisako and I paid privately for Carl and Joanne, for their trip from San Diego. We invited them for two dinners and paid for their 2-day stay at the NASA Lodge.

Now to Carl's talk at the Symposium. Based on the Abstract that Carl had submitted (copied below in blue) I expected him to talk about cosmology and his view of the **evolution of the universe**.

Professor Gibson is an expert in the area of turbulence and turbulent mixing, having studied it extensively with physical and computational experiments in the ocean and atmosphere. He has looked at the effects of magnetic fields and the stratification and rotation of turbulence. Recently, he has begun working with astrophysicist and astronomers ***to analyze the creation of the universe*** *(e.g. the big bang). Gibson believes that previous theories detailing the construction of stars, galaxies, and planets are inadequate because they do not address the presence of turbulence. He is working to develop a different theory and accompanying equation.*

Gibson received his Ph.D. degree in chemical engineering from Stanford University in 1962. He then joined the Peace Corps and served as a volunteer for two years in the Chemical Technology Department, Osmania University, Hyderabad, India. After a brief period at Woods Hole Oceanographic Institute, he joined UCSD in 1965 and is now professor of engineering physics and oceanography in the Departments of MAE and Scripps Institution of Oceanography, and Acting Provost of Warren College. Among his professional distinctions, Gibson is a Fellow of the American Physical Society (1975).

Clearly deviating from his published abstract, Carl threw into his presentation at Mino's Symposium the idea of the origin of Life soon after the Big Bang. He thereby created consternation among the audience. I mentioned to him after his talk that this idea of the origin of Life is untenable. Nonetheless, when I received Carl's text for the book chapter, I saw that he subscribed to the concept of panspermia and even made it a center piece.

You probably know me only as someone interested in earthquakes. However, my major area of research since the 1970s has been in the area of origin of Life. I started in this area while I was tenured professor in Germany and actually came to NASA Ames BECAUSE of my origin-of-Life work. I still have two major NASA grants in this field. I personally know or knew all the big players in exobiology, now called astrobiology, from Stanley Miller onward. I can tell you with sound knowledge of the still unresolved physical/chemical laws that underly the origin of Life, that panspermia is a past idea. It was born out of a sense of wonder some 100 years ago, even 200 years ago. At that time the level of understanding of the complexity of Life was of course rudimentary. Even today we basically don't know how Life came about, even though my own contribution in this field (and a benchmark 2006 paper in the Astrophysical Journal, which Mino and I co-wrote) is starting to find international recognition as a major step forward.

I talked with Mino about panspermia. His knifesharp intellect rejected it outright. We laughed when we saw the Creationists' efforts to incorporate panspermia into their zealous religious drive.

This is why I agree with Stephanie Langhoff and all others, who read Carl's chapter, that it would be a blemish on Mino's book.

I hope you understand.

With best regards,

Friedemann