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## David Grinspoon

**Lonely Planets**  
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### A Conversation with David Grinspoon

#### What makes this book so relevant today?

Astrobiology, the new NASA-supported synthesis of astronomy and biology to study extraterrestrial life, is currently a hot scientific topic. Recent discoveries of new planets orbiting nearby stars and life-friendly places within our own solar systems have returned this topic to scientific credibility and frequent media coverage. At the same time, interest in UFOs, alien abductions and other nonscientific approaches to the questions of aliens has never been higher; there's an epidemic of popular movies and TV shows on these topics. Each of these developments speak to the human desire for connection with the wider universe through some sort of contact with alien life. In *Lonely Planets* I put all of these wide-ranging, recent developments in the science and culture of alien life into a single accessible narrative, which I hope is also entertaining, thought provoking and maybe even inspiring.

#### I was astounded to see you say in the foreword that we know nothing about alien life. Are you saying that all the recent scientific breakthroughs don't amount to anything?

No, not at all. We've learned so much from our first four decades of planetary exploration, from studying the history of Earth, and of life. From this, we have all these ideas, which have grown quite sophisticated, about how and where life evolves throughout the universe. But certain parts of this scientific creation myth are houses of cards built upon untested assumptions. I love this whole shaky edifice of knowledge, and the subject of alien life allows me to admire it and show it off, while also critiquing it. I feel that, with my own research into planetary evolution I've helped add or adjust a couple of cards, contributing in some tiny way to the collective logical structure that is our modern scientific world view. It's fun, and instructive, to look for the loose cards. For example, we assume, based on the terrestrial example, that alien life will be organic (carbon-based) and depend upon liquid water. I describe the (reasonably solid) reasons why we believe this, while also discussing why we might be completely wrong. The possibility exists for a mind-blowing discovery which would send the whole house of cards tumbling to the ground.

#### So what are you saying about what we know and the scientific community today?

While we can put together a lot of scenarios about life in the universe, we only know only one living planet — Earth — right now. But we scientists don't always own up to our near-complete ignorance. There is a great need for more humility in science, especially in light of the rampant anti-science sentiment in our culture. That stems, in part, from a perception of arrogance and elitism. I believe it's possible to love science and also be skeptical and critical of it. In the scientific study of alien life, there are huge gaps in our knowledge, and this can serve to remind us to stay humble.

#### Why did you call this a book about natural philosophy, and not a history of science?

I am urging a revival of a way of thinking about nature that emerged in the Enlightenment, but disappeared about 150 years ago. Our classical Western scientific heroes like Copernicus, Galileo, Newton and Kepler, were all philosophers with a particular interest in understanding nature. Starting with Galileo, some philosophers developed an experimental method of establishing truths. Natural philosophers didn't separate scientific inquiry from questions about the limits of science, and they didn't carve the universe into a myriad of separate disciplines with different languages. Astrobiology is, I think leading the way in helping the scientific community to think like natural philosophers again.

Also, it is important to acknowledge that there are some valuable ideas about ET life which go beyond science. They are non-science but not nonsense. Some of the important questions force us into this realm. Again, why do we assume that life must be carbon-based? Why do we assume that intelligent aliens will, like us, build radio telescopes to communicate between the stars? What are the ethics of interplanetary contact? I'm not saying that science is irrelevant to these questions. It is hugely relevant. But a complete discussion requires that we question all of our biases, and this requires that we consider ideas which are not scientific because they are not quantifiable or testable, but are nevertheless quite fruitful and worthwhile. These questions take us beyond science and back into natural philosophy. And some of the answers, I suggest, are much more likely to be found through exploration than science — a distinction we don't always make.

I am also fascinated by the cyclical nature of our ideas about alien life, and in particular how many very modern-seeming ideas were actually dreamed up by 17th century natural philosophers. They weren't yet called scientists. By calling the book "natural philosophy" I also wish to give credit where it is due.

#### What role did Carl Sagan have in your development as a scientist and writer?

I've been fortunate to meet and interact with several of the pioneers of modern astrobiology and SETI (the Search for Extraterrestrial Intelligence). Carl Sagan was a close friend of our family, so when I was growing up, before he was famous, he was just Uncle Carl. His enthusiasm about planetary exploration and the very real possibility of alien life and contact was contagious and inspiring. Later, I worked as his undergrad research assistant and, while I was doing my graduate studies we collaborated on studies of the habitability of the early Earth. He became my colleague as well as a mentor of sorts.

Like Sagan, I am a working scientist who can write, as opposed to a science writer who is reporting from the sidelines. I'm certain that knowing him made me feel, by osmosis, that it's okay to write books on popular science, while being a "serious" academic and scientist.

**In a review of *Venus Revealed*, your previous book, a reviewer called you "the Hunter Thompson of Planetary Science." Do you get flak from your fellow scientists for both writing popular science, and also for the very personal voice you use throughout your books?**

Sure I've gotten flak, but it would have been worse if I had called it "Fear and Loathing on the Trail to Venus". Unfortunately, there is suspicion in the academic world for those of us who write popular science, and who want to reach out to the masses. Hell, Galileo was supposedly persecuted, in part, because he published in Italian — the language of the people — rather than in Latin. So this has been going on for a long time. But I enjoy teaching, and it's the same impulse, to communicate and to connect, that I use when writing for the general public. And I use the same personal voice, both in class and in my books. I can't help cracking the occasional joke and mentioning last night's Simpson's episode. Isn't it more fun for all of us?

Many science writers provide a lot of useful information, but use a very passive, "objective" style. I certainly use that passive voice myself when writing my scholarly papers or NASA reports. But I'm very comfortable with switching to my more quirky style for my own books where I'm communicating to a wider audience.

**Mars is taking center stage in the news these days. You have a contrarian view of the current focus on it, no?**

Well, I'm a big supporter of Mars exploration, but I don't think we should sell it as a search for life. In *Lonely Planets* I am critical of the current extreme focus on Mars as the place to search for life, arguing that Mars does not seem to have the qualities of a living world, and suggesting that, in our current ignorance, we should explore broadly and not rule out such "exotic" places as Venus and several moons of Jupiter.

**Does the current acceptance of astrobiology somehow make ufology more respectable?**

No. Scientists, and astrobiologists in particular, try to ignore ufology and want it to just go away. I certainly don't uncritically accept the claims of ufologists. In fact I'm afraid I'm a bit mean to some of them. But I do try to take an honest look at exotic ideas about aliens, though the overwhelming majority are surely false.

Many scientists just automatically rule out ufologists' claims. This is tempting, because there is so much B.S. out there, but it can also lead to intellectual laziness. My position is that science at this point can't really say anything about the limits of the advanced technology that might be developed on other worlds. So we have to be careful when we state that something is impossible.

I also suggest in my book that there is a human drive to believe in intelligent life beyond Earth that transcends wide differences in philosophy. We all want to believe in aliens for reasons that are basically spiritual.

**Why are there so many references to music in your books?**

I've always — since junior high school — played in bands and been a part-time musician as well as a scientist. I tend to see things in musical terms: Intelligent electromagnetic signals coursing through the universe could be the greatest jam session ever. The experience of performing music informs my approach toward teaching and communicating science, and all the pop music lyrics stuffed into my brain form a web of references that can be applied to any topic in the cosmos.