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Planetary Stewardship in the Anthropocene Era - A Dialogue with Astrobiologist David Grinspoon

Geoffrey Holland



Sharing our World | Photo courtesy of the author

This is an ongoing Q&A blog series focused on the need to embrace our common planetary citizenship.

David Grinspoon is Senior Scientist at the Planetary Science Institute. His research focuses on comparative planetology, with a focus on climate evolution on Earth-like planets and implications for habitability. He has also studied, written and lectured on the human influence on Earth, as seen in cosmic perspective.

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Geoffrey Holland - We have entered an era known as the Anthropocene, in which humans are basically overwhelming the planetary biosphere’s ability to self-regulate. What are some of the global scale challenges caused by humanity’s excesses?

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David Grinspoon -First and foremost, for a lot of us, is climate change; anthropogenic climate change. There are a whole host of global scale challenges that are being, and we can see will be, caused by humanity's excesses, but climate change is the challenge that's starting to bite us now. In a way, it's what I call the "twisted gift of climate change", because it's the first thing that's teaching us a lesson that we're going to have to learn over and over again, until we embrace it. The lesson is that we are having massive impact on a global scale now; and if we don't develop that scale of self-control, we're in big trouble. If the scale of our influence exceeds the scale of our self awareness, we have an inherently dangerous and unstable situation. So, climate change is perhaps the most urgent, but there are many others; for instance, the poisoning of the biosphere with various dangerous industrial chemicals and all the known and unknown consequences of this. And, of course, human overpopulation in itself is the uber problem that exacerbates all others. The need to feed the world requires either more and more land for agriculture, or an intensification of agriculture, which done right can be a solution, but can also cause its own problems with increasing use of fertilizer, pesticides and runoff. Then, obviously, there's the problem of conflict exacerbated both by population and potentially, by climate change, desertification and other related problems. All of these issues are related. They can be summed up in the human need to come to grips with our nature as a global entity, and we have not yet integrated that fact, into the way we conduct ourselves.

GH - What does it mean when you write that human habits honed in the Holocene are mismatched with the threats we face in the Anthropocene?

DG - In a way this feeds off of the previous topic. Because, in the Holocene, humans got very good at applying technology, to survive in various local environments that would not have been habitable to us otherwise. Both material technology and cultural technology, increasing our ability to organize ourselves into clans, cities and eventually nations. So, we became these brilliant adapters, but we operated under the assumption that the world was infinite. And it wasn't a bad assumption for a long time. I mean, who were we to think we could change the world with our technology. There was always more virgin forest just over the next mountain. The scale of the ocean and the scale of the continents were just so vast compared to the increasing scale of our own actions. We honed these Holocene skills in a world that seemed infinite, and imperturbable. There was the sense that, when you were through with things, you could just toss them away. Eventually, of course, we learned there was no "away". But we became so good at operating that way, occupying every continent, and increasing our numbers to such a great extent, we started to create global scale changes. We were completely unequipped to recognize our impact because the Holocene world was functionally infinite. It would have seemed absurd to worry about changing our ways. So, the way our

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survival habits were honed in the Holocene do not match up with the massive, planetary scale challenges we face now.

GH - You have written that a good anthropocene is possible. What would that look like?

DG – First it would mean changing our global energy systems and a leveling off of our population at a level that can be fed and supplied with energy in ways that do not destroy the natural systems we depend upon. These changes are already underway, but painfully slowly. Ultimately it would mean learning to gracefully integrate our technological activities into the cyclic workings of the planet so that we are working with, and not against, Earth systems. For this we will need a reinvention of the human race and our ways of being in the world. This is actually something we have done before. If you go back hundreds of thousands of years, there were times when the human race was almost wiped out in the face of existential crisis, even caused by climate change. We survived by reinventing our relationships with the world, and with one another. 190,000 years ago, the human race was down to a few hundred individuals – almost wiped out – and we got through by enlarging our circles of cooperation and improving our ability to communicate survival skills with future generations. Now we need to integrate our knowledge of our global influence into the way we conduct ourselves at all scales. And there are many ways in which one can already see this happening. It's just a question of whether it will happen quickly enough. I mean, look at how we recognized the threat to the ozone layer, which was self induced and dire. Ultimately, after a period of disagreement and conflict, we arrived at global agreements about how to face the ozone problem, which is now on its way to being fixed; not without some wrinkles, but the global scale response is basically working. That shows that we have the capacity to act on this kind of larger scale. There are a lot of frightening trends, short term trends, right now and it's hard to see past them to the long term. We do have greater connectivity, and greater awareness, and satellite Earth observation, satellite communications and the knitting together of the world by trade and so forth, and the slowly dawning appreciation of common threats like climate change. This is a generational scale phenomenon. So it's hard to see. But I do believe that those parameters could lead to a more globally conscious humanity. It may be that a good Anthropocene, if one is to arise or be created, will come after some period of catastrophe. The 21st century is a very dangerous time for humanity. But if you look several hundred years or 1000 years in the future, it's possible we will have learned some lessons, maybe some of them the hard way, and evolved toward a planetary scale existence. There's a growing ability to perceive the world globally, and there is certainly the possibility of nonlinear change in human dynamics, as well as nonlinear change in global dynamics. And so I see reason for hope for a good Anthropocene, but obviously, the path from here to there is a challenging one.

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GH - You talk about the need for a human identity politics. How is that different from what we have now?

DG - That's a great and challenging question. When we talk about the Anthropocene, the new phase of Earth history in which human activities have become a geological force, some people object to this. One objection is to say: wait a minute, not all of humanity is responsible. It's the rich developed nations that have burned most of the fossil fuels and spread these big problems. And it's the poor countries that are vulnerable and most at risk. So, talking about things on a species level amounts to sort of brushing over or covering up serious issues of environmental justice and differential responsibility. I think that's a valid criticism and anybody who talks about the Anthropocene has to be aware of that sensitivity. It's important that we don't gloss over these other views of identity and recognize that communities have different historical responsibility and different abilities to control their fate. And yet, it's wrong to reject species talk because there are indeed ways in which the human race is a new presence on this planet that is doing unprecedented damage that we have to address with a global, species level view. We need both perspectives. I like Martin Luther King's vision that "we need to develop a world perspective" in order to move forward as a human race.

GH - You write about terra sapience as a human quality that we all must embrace. What is terra sapience?

DG – Homo sapiens – that's us – is Latin for wise ape. If we think about what that means, then acting in a way that threatens our own well being and survival, does not exhibit much wisdom. So we can't continue to act with a Holocene mindset of not worrying about the global consequences of our actions. So, terra sapiens is my phrase that means literally, wise Earth. It's sort of identifying with the earth with our planetary stewardship to the point that it becomes integrated into the way we operate. The bare minimum of being a truly intelligent species means operating in a way that doesn't threaten our future. We are operating on a planetary scale. So we have to integrate that knowledge into the way we conduct ourselves. That to me is sort of another stage of evolution, that we haven't quite reached, but that we can talk about, and we can envision. There are encouraging examples: I mentioned the ozone solution. There are also examples from the area of public health, where we've achieved enough global cooperation to wipe out some dangerous diseases. So to me, Terra Sapience is achieving the state where it's sort of second nature to think on a planetary scale in order to thrive over the long term.

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GH - Do the current politics of exclusion and intolerance have a place in the good Anthropocene?

DG - Absolutely not. I don't see how we can achieve a good outcome for our species or for the biosphere without a more inclusive vision of what it means to be human. You can see this playing out in the current refugee crisis being exacerbated by climate change. We can't focus societal efforts on global solutions if we're fighting with each other, and reinforcing our borders against people displaced because of climate change. There are just going to be more refugees, and more displaced people, and more conflict. In the long run, these are linked concepts; human justice and environmental justice.

GH - Do women have an important role to play in building planetary knowledge and planetary identity?

DG - Of course they do. There are different levels in which I could answer that question. One focuses on the empowerment of girls and women in poor countries. I mean, all over the world, but especially in poor countries. That's absolutely crucial to solving the climate crisis and the overpopulation crisis. In fact, it's been said if you really want to apply your efforts to reducing overpopulation, and avoiding more severe climate change and all these other problems you should be educating girls in developing countries, because when women and girls become empowered, fertility rates drop, people begin having smaller families and improving their standards of living. Another thing I would say is that our world is facing is an excess of what we might call toxic masculinity. It's not a magic bullet to get more women in power, but it does help. There's a balance of capacities and skills and mindsets that the world needs. We need all the talents that we can find applied to our problems. So of course, that means that women have an important role to play.

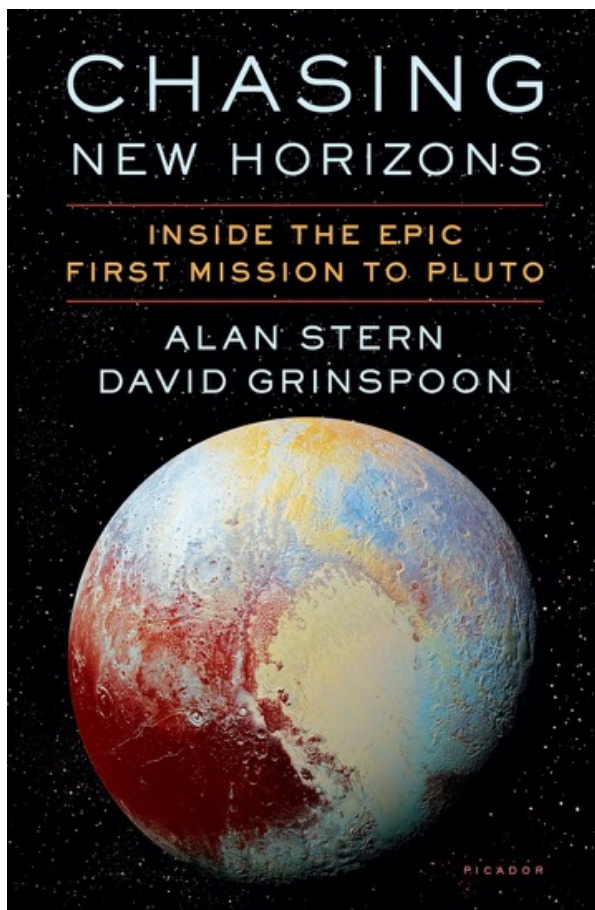
GH - Would a shared commitment to 'dignity for all', along with a commitment to 'responsible planetary stewardship' serve well as the foundation for effective global governance?

DG - Yes, absolutely. I don't see how ultimately you can have one without the other. Responsible planetary stewardship means aiming for a good life for all humans as well as the other species we share this planet with. Empowering people out of poverty is very important ultimately for solving climate change and solving environmental problems. In rural China and some other poor countries, food is still cooked on wood fires and peat fires because people don't have access to other kinds of energy, and environmentally that's really harmful. But people are forced to do that out of poverty. There are many ways in which if you can help

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people to live with more dignity, that helps them become better stewards of their environment. Giving people access to resources and education is key. People need to understand the connections between their local actions and global consequences. Nobody wants to live in a world without trees and birds. So ultimately, dignity for all and commitment to responsible planetary stewardship go together, and together, they do serve well as a foundation for effective global governance.

GH - Your most recent book, *Chasing New Horizons*, tells the story of NASA's planetary mission to Pluto. After nine years in space, traveling three billion miles from Earth, the New Horizons spacecraft achieved a near flawless fly-by of Pluto, the last planet in our solar system that remained unexplored. Does this remarkable achievement leave you optimistic that humans can find a way to correct our own course and chart a worthy place for ourselves in the universe over the long term?



DG - Yes, it does leave me optimistic, because the story of New Horizons is the story of people achieving what many said couldn't be done. A group of people became committed to a goal, didn't give up on it, and kept their eyes on it for decades at some risk to themselves; without any huge motivation of greed or avarice. It was about trying to achieve something really idealistic and far off, and improbable. The thousands of people behind New Horizons stuck with it for decades, and against the odds, they did it. So, it was an example of what human beings can do when they put their minds to it. In a more broad sense, planetary exploration is one of the things happening now that does give me hope. The knowledge we've gained through exploring other planets, and crucially through space-based observation of our own planet, has delivered invaluable perspective on how humans are changing the earth.

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GH - What can each of us do as individuals to ‘human up’ and be the change we all should wish for?

DG - We can go about our lives thinking about the choices we make in terms of how we get around in the world; what we eat; what we waste or don't waste. If we change our mindsets, and communicate that mindset to other individuals, all those individual actions add up to big changes. For example, it's been pointed out that if everybody just eats a little less red meat every week, that can make a huge difference. There's also the need to continue to educate ourselves and educate each other to spread knowledge of our planet. There's also political action. Those of us living in democracies should elect leaders who are aware of our global situation and are prepared to act on it. And you know, it's hard to see the future when immersed in the craziness of the politics of the moment, but there are people who see a green wave coming in our politics, partly because of the scary reality of all these heat waves and fires, flooding events, extreme weather events. All of that is going to help give us a slap in the face to wake up. Everything we can do to help people connect the dots between the personal safety of everyone and the global safety of the biosphere and the well being of future human generations, as well as other species is a little push in favor of a good Anthropocene.

David Grinspoon is Senior Scientist at the Planetary Science Institute. In 2013 he was appointed to be the inaugural Chair of Astrobiology at the Library of Congress where he studied the Anthropocene from an Astrobiology perspective, which lead to his 2016 book “Earth in Human Hands: Shaping Our Planet’s Future”. His book “Chasing New Horizons: Inside the Epic First Mission to Pluto”, co-authored with Alan Stern, was published earlier this year.

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