



Cosmosapiens: Human Evolution from the Origin of the Universe

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Specialist scientific fields are developing at incredibly swift speeds, but what can they really tell us about how the universe began and how we humans evolved to play such a dominant role on Earth?

John Hands's extraordinarily ambitious quest is to bring together this scientific knowledge and evaluate without bias or preconception all the theories and evidence about the origin and evolution of matter, life, consciousness, and humankind.

This astonishing book provides the most comprehensive account yet of current ideas such as cosmic inflation, dark energy, the selfish gene, and neurogenetic determinism. In the clearest possible prose it differentiates the firmly established from the speculative and examines the claims of various fields such as string theory to approach a unified theory of everything. In doing so it challenges the orthodox consensus in those branches of cosmology, biology, and neuroscience that have ossified into dogma.

Its striking analysis reveals underlying patterns of cooperation, complexification, and convergence that lead to the unique emergence in humans of a self-reflective consciousness that enables us to determine our future evolution.

This groundbreaking book is destined to become a classic of scientific thinking.

(67 black and white illustrations)

Cosmosapiens: Human Evolution from the Origin of the Universe Details

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John Hands**

From Reader Review *Cosmosapiens: Human Evolution from the Origin of the Universe* for online ebook

Daniel Kenefick says

This book is about 2 things, at the end of the day:

1. The "orthodox" theories in many areas of science, from cosmology to biology, have substantial evidence against them that the public rarely hears about.
2. The author argues that the universe "evolves" towards increasing complexity, despite other scientist's rejecting the idea that the universe has a goal or even overall trend.

In short, I liked (1) and didn't buy (2). Here's why:

1. Bad Orthodox Theories

Much of the book is spent exploring and rebutting what the author calls "orthodox" theories of science. Don't take this the wrong way: the last sentence may make the author sound like a science denier, but far from it: he does his best to present evidence against major theories as scientifically as possible, and give air time to rarely discussed competing models. It had none of the stink of an article like "Top 10 reasons evolution is SCIENTIFICALLY FALSE" [1].

When done well, this is the best part of the book. He explains, to the scientifically minded reader, why some of the theories like "the big bang" still have holes in them, or compelling evidence against them. However, sometimes the invective against academics comes off as a little petty: He is right that scientist are people, and these people have vested interests in protecting their pet theories, but I think he goes to far in painting the academic establishment as some kind of cabal that keeps out nascent explanations.

2. Increasing complexity

The author's intense rationality does not carry over to his argument for increasing complexity. He clearly has his own pet theory that he might be pushing at the expense of the science he spends most of the book dismantling. Needless to say, I didn't buy it. I can't list all of the reasons, but here's an example: The author says there has never been an instance recorded of a creature evolving from something more complex to less complex, but this is patently false. There are small eukaryotes that have evolved to rid themselves of mitochondria, unarguably a transition from a more complex state to a less complex one. Much of his argument is similarly rebutted. And I wouldn't need 800 pages to do it.

Overall, I thought it was worth the read, but would have been a better book if it was half as long, and stuck more to the science and less to his own theories.

[1] That was satire, but I actually found one.

Jim Coughenour says

A few months ago, reviewing Noam Chomsky's *What Kind of Creatures Are We?*, I mentioned I was intrigued by his lecture on "mysterianism" - the scientific quest to compass the limits of what we can know

scientifically. John Hands has published a massive set of notes on exactly this topic. It's quite a performance. I picked up this book expecting some kind of summa, analogous maybe to Ken Wilber's 1995 blockbuster *Sex, Ecology, Spirituality: The Spirit of Evolution*. *Cosmosapiens* is nothing of the kind. Instead Hands surveys the domains of cosmology, physics, evolutionary biology, philosophy – an ambition that will strike readers as impossible, ludicrous and astonishing. According to Hands all the grand theories of the world are species of imaginative overreach. We really cannot know, at least following the canons of inductive and deductive reasoning, most of what we think we know about the history of the cosmos or the evolution of the human species.

His conclusion, which emerges in bits throughout the book, verges on mysticism, similar to Teilhard de Chardin's noosphere or (unmentioned by Hands) Owen Barfield's evolution of consciousness. For me the argument ended exactly where it started to get interesting. Readers' reception will vary.

Steve Harvy says

COSMOSAPIENS is possibly the best popular summary of the universe since Stephen Hawking's *BRIEF HISTORY OF TIME*. Professor Hands is a double barreled threat: He has a high end knowledge of physics and cosmology, biology, neuroscience, and world culture + an unusually clear and powerful style. The overall effect is truly colossal like reading Blake or Milton or listening to Wagner.

COSMOSAPIENS is going to be a classic. This book explains how the original Big Bang theory relates to its Inflationary Model postscript. There are of course many variants of the inflationary universe, but they all have one thing in common: They will all blow your mind! Why should the universe be limited to a mere 13.8 billion light years in every direction? Who can limit the fecundity of God-Nature and who can limit Her scope and range?

This book has every prospect of sinking deep into the popular mind and of remaining there for many many years.

Jon Huxtable says

Endorsed by leading scientists and philosophers, COSMOSAPIENS reviews with exceptional clarity for the non-specialist reader the current scientific evidence that shows how we evolved from the earliest matter and energy at the beginning of the universe. In doing so Hands shows how many scientific theories, like the Big Bang and Neo-Darwinism, have become dogma contradicted by observational and experimental evidence. His findings about what we are, where we came from, and why we exist are beautifully argued. (For the record, he dismisses creationism and Intelligent Design.) His conclusions about humankind's unique possession of reflective consciousness and our ability to control our own evolutionary future are mind-blowing.

Nilesh says

Cosmosapiens should be read as a different type of "Big History". It strings together three evolutions from

the start of time in the universe to Today in human society. The evolutions of matter, life and ideas are explained with a lot of information and tremendous summarizations. The author does a good job (and simultaneously a terrible injustice, described later) in laying out what theories truly explain as well as merely speculate/assume/doubtfully conclude about the phases of these evolutions.

The information work is encyclopedic in scope. Almost every reader is likely to have many "aha" moments when they come across something they have never heard before.

The book must be commended for the structure and the logical flow. Disparate topics are tied well under sensible, novel categorizations. Every chapter, and sets of chapters, are introduced and concluded with hard-hitting, precise messages. The body of the text detail the basis well - mostly through satisfactory summary of the theoretical work underpinning the subjects under consideration. The pace is absolutely hectic given the scope of the work, and one can always complain about the overlooked details as a result. However this is trifling compared to what the book contains and covers.

While the author is tremendous in adding the structure and coherence to a vast body of different type of work, he is almost a different person when airing the flaws of nearly any widely acclaimed theories. He repeatedly sounds bitter while describing their shortcomings (many trivial) while disdainful discussing any of their achievements. The author seems to have a deep-rooted love for underdog theories not accepted by what he sees as the mainstream groups. A small fraction of these rejected ideas are absolutely right, but the way author celebrates them while repeatedly denouncing the accepted wisdom, he appears to yearn for the theoretical world to be run by those seen as loonies by the scholars, who in turn to be thrown out as the arrogant, self-serving, egoistic idiots.

Try answering "the factors that led to Donald Trump as President". Even with all the information on how we got here, no two scholars are likely to agree on any answers propounded. Of course, no models or theories can explain what happened billions of years ago or even a couple of centuries ago except as basic outlines. The smallest model that would explain everything is the universe itself. The rest - whenever looked in detail - will only have inadequacies. As a result, most scientific models will improve over time. Every explanation will raise more questions. Throw in the fact that scientists are individuals building their own reputations, careers etc - most specialists have much more to contribute through criticisms of others' work than constructive of their own.

The author fails to realize - despite his otherwise laudable perspicacity - that the champions of Neo-Darwinian theories or the biggest proponents of the Big Bang are well aware of the flaws highlighted and more. When they reject some alternate hypothesis, they do that on account of lack of sufficient evidences. If every alternate idea were to be tested before rejection, a research budget thousands of times over cannot prove sufficient. Science will continuously be jolted by outside theories every now and then, but still more than 999 out of 1000 of those theories are wrong. The reverse is true about the mainstream ideas: all of them will need modifications over time and none can truly explain even a sliver of the whole, but what they explain as of now is more than anything else. Scientists all agree that all the theories are fallible eventually or outside the narrow contexts assumed.

But for the repeated, needless hammering of the mainstream, the book is a good read for those more interested in the research work summarized.

David says

This is an amazingly ambitious book. It covers such a wide range of topics--I have never seen such a comprehensive non-fiction book. It starts out with a detailed description of theories of the origins of the universe. Here, John Hands is at his best, as he sorts out the various theories. He reasons why some of the theories are still in the running, while others are not borne out by the available evidence.

John Hands continues to discuss the origins of life. He describes the prevalent theories, and gives his opinions about which theories are most realistic. He describes evolution from the earliest microbes to the present-day complex organisms. He considers the evolution of humans and the origins of consciousness. He points out the ways in which humans differ from all other animals.

Then, the book goes into a history of the human race. The development of science, technology, and philosophy are covered in some detail. He points out that many so-called "world-wide" philosophy books skip almost completely the philosophies of the East, and concentrate almost entirely on those of the West. While John Hands does devote attention to Eastern philosophies, he also spends much more time on Western ones.

This is not an entertaining book. There is not a trace of humor, and there is no effort taken to make it easy on the reader. However, the sheer scope of the book, and the intelligent unbiased descriptions of the science, history, and philosophy, make this a book deserving of one's attention. I recommend the book for people who are truly curious, and want an unbiased view of our understanding of human evolution.

D.L. Morreese says

What are we and why are we here? Humans have been asking these questions throughout recorded history. Before writing came along, I have no doubt they were a topic of conversation around the fire as our ancestors roasted their mammoth steaks.

In the last few centuries, we've been using a new tool, science, to help us find answers, and it has proved remarkably effective. John Hands acknowledges this, but the main focus of *Cosmosapiens* The first point is true. Life, the universe, and everything began a very long time ago—almost 14 billion years, judging from the evidence we currently have. Much has happened since then. Science looks for evidence, clues, facts—things that can be observed, analyzed, and measured. The data we gather today can provide good information about the results but not about the causes. Those must be inferred. Imagine you're a detective and your job is to discover who committed a murder. Given a pristine crime scene, a skilled investigator (say someone like Sherlock Holmes) can gather clues and conclusively demonstrate that the murderer was Mr. Green in the library with the wrench. But what if the crime happened a thousand years ago in a house that has since been burned to the ground, razed, replaced, and the plot later razed again to build a parking lot? Multiply the detective's difficulties by whatever astronomical figure you wish, and that's the kind of problem scientists have in discovering the origins of life and the universe. Extracting a conclusive answer from the remaining clues is difficult. Does this mean it's impossible? Of that, I'm not so sure.

Whereas I can appreciate the considerable effort it took to write *Cosmosapiens*, I can't say that it demonstrates its central thesis, and it's certainly not enjoyable. The prose is stiff, academic, and it does not express either the joy or the enthusiasm for discovery that you find in some popular books on science. On the

contrary, it carries a defeatist tone like that of a disillusioned fan over the latest disappointing movie in a once-favorite series.

I have no objection to pointing out open issues, flaws, and inconsistencies in and between current scientific theories. Challenging popular beliefs, theories, and assumptions is a key component of science, after all. But some of the criticisms Hand offers seem exaggerated or a case of picking nits. He also fails to explicitly offer alternatives.

He does, however, imply support for conjectures that, to me, seem dubious at best. One is the idea that 'reflective consciousness' represents a phase change, which he claims is demonstrated by the human ability to ask the questions posed at the beginning of this review. Such questions are so qualitatively different from those that other animals ponder (such as: Where are the best bananas?) that the emergence of our capacity to ask them must have been relatively sudden and is possibly inexplicable by the process of natural selection. I do not find his argument convincing.

I am also left unconvinced by his distinction between superstition and insight, which he seems to offer as an alternative to science for obtaining knowledge. Superstition, which falsely attributes natural events to supernatural causes, and insight, which he defines as 'Seeing clearly the essence of a thing' are, I think, much less distinct than he claims them to be. Insight is a subjective impression, an aspect of intuition, but it does not provide knowledge in the way that science can. Different people in different cultures will interpret their insights differently. One may attribute them to the influence of ancestral spirits. Another to the word of God. A scientist from our age will probably regard his or her insights as possibilities and attempt to develop theories based on them. Insights in and of themselves, do not provide 'direct understanding' in any objective way as he seems to claim.

Another of his less than convincing speculations is the possible existence of 'psychic energy'. No clear definition is offered, but he also infers the existence of a psychic field. This seems ironic in that the first part of the book derides theoretical physicists for posing the existence of alternate universes, dark matter, and other highly speculative notions.

His summaries of, and objections to, existing scientific theories are interesting, and he is quite correct in that they have so far not provided conclusive answers to fundamental philosophical questions about the origins of life and the universe. But science as we currently practice it is still young. Whether you mark its beginning with Galileo or Darwin, it's only been around a short time. But in those few centuries, science has revealed far more useful information than have all of the insights and speculations in our recorded history. Science may not be the only tool available to help us understand our existence, but it has proved to be the best we've ever developed.

Jon White says

I'm not surprised that reviewers have rated it as Book of the Year in The Times Literary Supplement, that

The Telegraph (UK) rated it as one of the best science books of 2015, and that 12 leading philosophers, scientists, and sociologists have praised it, not least for its astounding scope and lucidity. *COSMOSAPIENS Human Evolution from the Origin of the Universe* is a must-read for anyone interested in the questions of what we are, where we came from, and why we exist. Be warned: its conclusions may surprise you.

David says

Cosmosapiens is a complex, deep, thought-provoking read that is difficult to sum up.

Learned and provocative are words that come to mind, but so are dense slog.

This is probably another one of those books that many will buy but few will read...cover to cover.

Its agnosticism about science, as a knowledge system, won't help the general reader. Many people are not interested in reading about the limits of knowledge and the human nature of knowing, even in science, that is more about socially constructed realities; politics; career angst, and the politicization of facts and their reception in the scientific world.

Cosmosapiens is an important book but one that is looking in two directions at the same time:

- 1) How science does not and probably cannot know everything
- 2) How important science is a way to know the world/universe about us

Mr. Hands, nonetheless, has produced an excellent, if overly long, survey book on the intellectual and political nature of scientific knowledge...but one that is ultimately unsatisfying.

A must read for scientific wonks and committed nerds...others may wish to give it a pass.

Rating: 4 out of 5 Stars

mm says

Why is this a book? There's only enough original content for a short paper.

Spoilers:

Science can't replace religion and can never explain 'why' we exist.

Critiques:

The reason no earth sized planets have been found is due to limits on telescopes and spectral analysis. We can only detect planets that pass through direct paths in front of stars, but that doesn't mean they don't exist. As technology improves, we'll know more - <https://www.nasa.gov/press-release/na...>

It's also hard to take the author seriously when they go on about intelligent design, but never mention the Fermi paradox.

The last two chapters are the only worth reading and that's questionable.

Peter McLoughlin says

This book tackles the questions posed by your eight year old self. Where did the world come from, what is a living thing, where did life come from, why are there so many different plants and animals and where did they come from, where did people come from, what is so special about people, and the direction of history. It may not be exactly written for my eight year old self but it focuses on his interests. It starts with the origins of the universe and the explanatory model of the inflationary big bang model and its problems. It then covers the more solid ground of nuclear physics, the quantum, chemistry, and thermodynamics. Things get more shaky with the origins of life but firm up with evolutionary theory and the history of life. There are some questions around human origins but these questions have at least good sketches if not better of what the answer to these questions look like. Pretty much up to date picture of our origins.

Charlene says

I am 12 hours into this book with 18 hours more to go. At the suggestion that we scientists still, in 2016, cannot explain the evolution of the flagella, I have to put this book down, at least for a while. Scientists can and have explained the evolution of the flagella. Just like eyespots, which turned into eyes, the flagella evolved in complexity. It is in no way "irreducibly complex." Scientists have proven this by switching out proteins. The flagella shows flexibility, not irreducible complexity. No author who would suggest such a thing in 2016 could ever be called a science writer, ever. This author can only be called a person who is presented with evidence and does not know how to understand and digest that evidence. Instead, he would rather concoct crazy scenarios in his mind. He is welcome to do that, but he is not welcome to call that process science. That process is called imagination, make believe, and in this case, stupidity.

Rusty says

Holy Shitballs! I know I can be rambly sometimes – I've had to edit out a third if its length to make it fit. Sheesh. Here is (No joke) my *abbreviated* review.

Recently---deleted awesome story about Harry Potter due to length---but not right now. This monster of a book was something I was anxious to dive into. I don't have it in front of me to look at, but memory says it's a summary of all human knowledge about our origins, of the cosmos, of the solar system, of the origin and evolution of life on earth, and the rise of humanity.

First, **COSMOLOGY:** The first third of the book is dedicated to the origin of the universe and our current understanding of the size and shape of the cosmos, more or less. I have very mixed feelings about this. As I am a huge lover of space and the cosmos and he spends most of his time explaining the flaws of the current models of the big bang.

I guess my problem, if you want to call it that, is that he is a non-expert evaluating the data in a highly technical field and finding it lacking. I run into this problem myself, by the way. See, I can't remember when I was introduced to the inflationary version of the big bang theory, I know I'd never heard of it when I was a

kid, and very obsessed with this sort of thing, but it was all the rage when I rediscovered my love of the sciences in my twenties.

Essentially, the issue is this, when Edwin Hubble famously realized that galaxies were, in fact, galaxies (and not planetary nebulae within our own galaxy) and were also moving away from us at disturbing speeds (due to redshift), it was easy for people to start working backwards from there and realizing that as you go back in time all these galaxies would have been much closer together, in fact, everything must have originated from a single point.

Makes sense, right? It's just that up until that time it was the consensus amongst scienctists that the universe was eternal, without beginning. The very idea that the universe may have had a starting point was disturbing, it, at least to the folks at the time, implied that a universe with a beginning meant something had to cause it.

As a digression, it reminds me of a story I once heard, that just after the results of the COBE mission was being reviewed (the first all sky survey of the cosmic microwave background radiation) a debate on the existence of God was being prepared for at our local University and the physics department was asked to provide someone for the negative (there is no God) position. They had to reply that the organizers would have to reach out the philosophy department, as the physics dept was 'fresh out' of atheists.

The story was meant to illustrate that the big bang implied a creator. And the evidence of the big bang was considered rock solid after the data gathered matched so closely to predictions of what the afterglow of a big bang would look like. They were even able to narrow down the origin of the universe to approximately 13.7 billion years.

All that is great, except that very small inconsistencies in the data don't EXACTLY match the models, and as other data gathering programs have been run subsequently, those inconsistencies have become more pronounced. It's a bit of a problem.

Now, put a pin in that, there has been another problem folks have struggled with regarding the big bang for some time, it's that best we can figure, the universe would have to either be Open (the bang that originated the universe forced the geometry of the cosmos to be hyperbolic... um, so parallel lines will get further and further apart over time. This means the universe will fly apart and all that) or Closed (the opposite problem, the universe ends in a big crunch – gravity overpowers the momentum of the expansion and the universe ends in a hot, dense singularity that looks similar to how it began) or Flat (parallel lines remain parallel – the universe's expansion slows and slows, but never quite stops. This is the least likely possible outcome, as, I mean, what are the odds of that? It's a razor's edge of perfectly attuned parameters to allow that to happen).

After decades of only speculation, in the late nineties data from other observations started coming in that indicated the universe was flat. The improbability of that was enough to, again, start all the God talk again.

Meanwhile, Alan Guth had become somewhat famous for his idea that in the very early universe, just after the big bang started, well, banging, that some unknown force just made the universe grow by several orders of magnitude many times faster than the speed of light. This solved all sorts of mathematical problems and produced a pretty flat universe to boot. Atheists were free to breathe easy once again. Science had re-killed god.

I kid, except I'm not. Not really. I mean, I'm not sure if my explanation made any sense, so just in case it doesn't – inflation posits that the rapidly expanding universe super-duper quickly expanded for a very brief

period of time before slowing back down to normal expansion again.

Now, that is all my interpretation of events, I'm not bothering to look any of this stuff up, and I'm dosing this heavily with my personal opinions. I'm probably wrong as a matter of fact, and my opinions could very well be the conclusion of some faulty logic. Whatever, it's still what I think. As soon as I realize I'm mistaken I'll correct it (at least in my head, probably not this post, I plan on forgetting I ever wrote this about 10 minutes after I hit the 'post review' button).

Regardless, I've always had an uneasy take with the inflationary model of the big bang, it feels VERY reminiscent to Ptolemy's epicycles as an explanatory means of the motion of the planets. You know, it's a complicated, nonsensical addition to a model to correct for some observations not lining up with what was expected.

I can't expect cosmologists to just chuck the big bang altogether (remember, redshift of galaxies and all that) but something about the current models feel very wrong to me. Whatever, I'm a layman. I can point out historical antecedents where the scientific consensus has been wrong (The Ether, remember that?), but I can't offer any meaningful critiques. I just shrug and think this is the best explanation we can come up with at the present time given the data we have.

So, finally, I get to this book. The author here is a bit like me, a non-expert, although one who spent a DECADE researching, and he's done a systematic review of the inflationary big-bang model of the origin of the universe and has concluded that it's almost entirely nonsensical and self-contradictory, I think he says something along the lines that this can't be really referred to as a theory, or hypothesis, it's just mythmaking.

Those are my words, not his, he said he submitted this to many cosmologists for review and received almost universal disdain. Some responses were belligerently angry, but few offered any corrections of fact.

I'm tempted to say that when an outsider reviews a field of experts and concludes the field is entirely wrong, that we have a classic example of the Dunning-Kruger Effect (where the outsider is so ignorant of the topic that they are unaware of how ignorant they actually are, giving them a false sense of confidence) and so some of this rage the author reported could have been frustration on the part of scientists that are continually combating people that attack their positions based on religious grounds, and misunderstand the details, interpretations, and conclusions at every turn. It can make it hard to have an honest conversation about where our ignorance lies.

So, the author has to overcome, at least in my mind, the larger issue that he is simply not equipped to speak authoritatively about the topics he is critiquing. I also don't have the expertise necessary, so I just wait for people smarter than me to explain it better so I can understand, or eventually figure out something that does make sense.

Because, honestly, the author's take is that there is a conspiracy to suppress minority views for other theories that may better explain the data gathered about the cosmos to date comes across to me as sour grapes. He has sought out people with dissenting views and listened to them complain about how unfair they've been treated, and then wrote about it, then submitted to the defenders of the consensus views and was surprised at their resultant outrage. I'm sure if I were an astrophysicist and people were constantly sending me stuff talking about the long odds of random events creating and sustaining life I'd probably be ready to snap at someone who clearly read and parroted lots of intelligent design arguments in writing a critique of that field of study.

So I'm concerned. I feel like I'm getting a somewhat biased review of the state of the field here. That said, I share his dissatisfaction with the status quo. However, it's the best explanation we currently have. I'm way more okay with it than he is.

Although there was at least one alternate theory of the origin of the cosmos that I liked but I won't share it because I may steal it for a story later.

Second, **EVOLUTION:** On this topic I feel a bit less at ease than I do with space based stuff. However, I feel like many of the complaints I had about the Cosmology section carry over here.

First off, he states that the evidence of biological evolution having and continuing to occur is "overwhelming" but seems to think the current model of natural selection is useless as a mechanism, and Darwinism, Neo-Darwinism and Ultra-Darwinism are all useless as descriptors for how evolution happened.

I also had a great deal of frustration with this part of the book. I think it had something to do with how I've read multiple books by the likes of Niles Eldridge, Stephen J Gould, Richard Dawkins, Peter Ward, and others mentioned in this section, and they all, I believe, advocate the general soundness of Natural Selection. They have had ongoing disagreements about the minutia of how it works, but punctuated equilibrium (Gould & Eldridge) fits quite well within the broader category of Natural Selection (a term, I must point out, that the author dislikes because selection implies a selector, and thusly infers an end goal, while 'natural' implies something completely different.)

But I'm dumbfounded at how these concepts are parsed out and then criticized for not being all-encompassing. Like, sexual selection doesn't work on species that don't have sex. Yeah, I think I get that. Or that horizontal gene transfer wasn't accounted for by Darwinism (the Origin of Species was published years before Mendel's insights into heredity were – of course it's wrong in detail).

In all, I really couldn't shake the feeling that he is looking into the process of science – ideas being formed, hypothesis created, others critique or test the hypothesis – and making it seem like it's, again, a large conspiracy to snuff out dissenting opinions. I don't want to be too hard on something I know so little about, but when he started talking about the "morphic fields" that shape the emergence of specialized cells and organs I was struck by how ridiculous it sounded as a possible legitimate contender for a mechanism for evolution. Might as well offer voodoo as a possible means. He offers this up like it's just as legitimate a possibility without even the slightest hint about how this undetected field might possibly work.

He mentioned that when he submitted the section regarding biological evolution for review from experts, one of the responses he frequently got back was along the lines of "You got your facts right, but don't seem to understand what they mean." He seemed to dismiss this out of hand as hubris from the respondents.

I'm kinda sympathetic to that line of thinking from the biologists, I'm not sure what his complaints are about the lack of inclusivity of the mechanisms of evolution. It seems very reasonable that mutations occur and on rare occasions are beneficial. Citing that those occur doesn't mean Polyploidy never happens and the two mechanisms are incompatible with one another.

Anyway, again, I'm in over my head a bit when we dive into the details, but I've not been sold on the idea that the field is in such disarray. As far as I know, Abiogenesis, the leap from unicellular to multi-cellular life, the evolution of sexual reproduction, the rise of consciousness.... These are all areas that are poorly understood. It makes sense that we'd be all over the map coming up with ideas of how those things occurred.

The author's point is to give a kind of 'state of the union' address on these topics, not tear them apart and call them names. He rightly points out that any point of ignorance regarding any detail of evolution is deemed a victory by those religious groups who deny evolution is a real thing, and so a sort of 'circling of the wagons' mentality in the field would make sense to me. Like the Cosmology section before, it paints a picture that having honest conversations about the areas of ignorance that lie in a body of knowledge isn't possible. There is a real danger that other parties will misunderstand, misinform others, and possibly use it as launch pad to insert their claims, based on ideology instead of evidence, into education and governmental policy. It's scary stuff.

In some ways I feel like his complaints about Cosmology are more intellectually justifiable than his about evolution. His dismissal of Richard Dawkins' "Selfish Gene" hypothesis seems almost gleefully done as he states authoritatively that it's logically incompatible with what we know about evolution. I dunno, I wouldn't be surprised if it's wrong in detail, much the way Darwin's thoughts about blended characteristics is demonstrably wrong. The Selfish Gene was proposed 40 years ago now. But I also have to confess, of Dawkins' books specifically about evolution, I've only read 'The Blind Watchmaker,' 'Climbing Mount Improbable,' and 'An Ancestor's Tale.'

Also, 'An Ancestor's Tale' is the best survey of evolution I've ever read, just an FYI. I know Dawkins has a bad rep, but he can write some wonderful things about the beauty of nature and the marvels of evolution.

Where was I? I should probably consider winding down here but I have so much more to cover. The book goes on to explore the evolution of consciousness in humans, and the changes that led us to modern humans. He gets very speculative here, odd, I think, given that speculation is sort of frowned upon throughout the book (although, now that I think about it, it's taking speculative notions and passing them off as legitimate theory that he seems to be railing against).

Third, **WHAT IT ALL MEANS** That said, I found the section on the evolution of consciousness fascinating – this is such a wide-open area of inquiry that all sorts of things sound plausible given our limited knowledge in the area.

It wasn't just the rise of consciousness, but a look at the rise in superstition, religion, philosophy & science. I was really into these final sections until he dropped a bombshell that sort of soured me on the whole thing.

And I don't want to come across as an ass here, but if I do, well, I guess I just do. He briefly detours into a conversation of psychic phenomena, out of body experiences and remote viewing. Basing most of this on research done by the governments in the 70's. He quotes a person or two that states Psychic phenomena is real and the data backs this up.

Bullshitbullshitbullshit. I would be lying if I pretended I was an expert, or even that knowledgeable on the topic, but it's sensible that the reason the govt quit sponsoring psychic research was because it was a poor investment (i.e, The Men Who Stare at Goats). I know that all these out-of-body experiences from people that die in an operating room have haven't passed the only test I'm aware of (which is placards that can only be seen from someone looking down from the ceiling {like, on the back side of surgical lights or something}). If only one person came back from dying on the operating table and said they could read the cards hidden around the room, then yeah, there would be some compelling evidence. But no one has ever done that. Ever. Seems odd).

Five minutes and Google could have dispelled the most common claims of psychic phenomena. I'm not going to ever say that there is absolutely no way it's not real, but I the James Randi Foundation had a

standing million dollar prize for anyone that could demonstrate a psychic ability under controlled conditions. I'm not sure it's still ongoing (James Randi is quite old these days) but it went unclaimed for DECADES.

And there have been numerous studies, almost always done by true believers within the profession (think of the Bill Murray scene in the first Ghostbuster's movie) and we still have nothing that goes beyond expected deviations given a large enough sample size.

Example: Famous experiments in the 70's involving psychics that were done in labs with scientists carefully monitoring concluding this shit was dead-on real. Story closed.

Except the psychic subjects later revealed they were faking it all that had duped the whole of the scientific community using simple magicians tricks (Again, James Randi was involved). Seriously, the evidence presented in this book for exploring this stuff further threatens to undermine everything else he's written.

I wound up being all over the map in my opinions about this giant book. The author is trying to differentiate what we know from what we believe. It's tough, and one especially difficult given that he's talking about things right at the frontiers of knowledge. What we know, what we *can* know and what we can't, even in principle, ever know.

I was frustrated, but this was an incredible undertaking. He may be demonstrating some bias (unintentionally, I'm sure) in how he's filtering and interpreting what he's investigated. I think he shows both cynicism and gullibility when reviewing data. We all do, but I can almost smell the cognitive biases he puts on display here while trying to be fair and honest.

I'd really like to read a detailed counter-argument to his critiques of the scientific establishment to see if the things I suspect he's misrepresented or misunderstood are actually errors on his part, or if he's accurately portrayed the state of our knowledge and the culture that prevents non-orthodox ideas to having a place in the scientific community.

As it stands, I can't recommend this book to anyone. It was worth the read, at least for me, and it forced me to think about some stuff I've not thought about deeply enough – but it shows some errors of logic, in my opinion, in its critique of science and what it can offer as a means of gathering knowledge.

Gary says

The author really needs to chill out, watch a Neil deGrasse Tyson video on the universe and put the wonder back in science instead of trying to tear it apart. Dark Matter, Dark Energy are not currently observable and we just have educated guesses to what they are. As Tyson says, we can just as easily call them Fred & Barney until we know more about them. They are just place holders for now. That's the way science works. The author just tries to tear apart the science. The teams that discovered the universe was expanding and hypothesized Dark Energy deserved the Nobel Prize, but this book just doesn't like Dark Energy, Dark Matter and a host of other standard science.

Science never proves anything. Our knowledge is what we consider to be 'justified true belief'. Sometimes we have to use mathematics and theory to account for manifestations. That doesn't mean we are necessarily wrong, but we use every tool at our disposal to explain nature by using nature. The author seems to want to go beyond nature. He quoted Einstein twice in the book to the effect that Einstein believed in a

"transcendental intelligence". The author sees that as a good thing, and he doesn't think the mathematics alone can explain the phenomena.

The author really doesn't like standard (he uses the obnoxious term 'orthodox') science. It's a pity. For within our current best understanding of science there are many awe inspiring stories to be told. Look at LIGO and its discovery of gravitational waves (ripples) through out the fabric of space-time. They measured the contraction and the expansion of space itself. They used Einstein's General Theory, known physics and mathematics about black holes, quantum theory and a whole host of other theories and used mathematical computer simulations to determine what happens when two black holes walk into a bar.... A story like that is so much more interesting then the constant picking apart of the standard science which the author constantly does in the book, and the author loses the forest for the trees because he doesn't realize that even without science being perfect we can still use what we think we know and tell incredibly interesting stories and use that to see space-time itself contract and expand.

Science will always be underdetermined, for any set of facts about nature there will always be multiple theories to explain that data. But the author doesn't seem to understand this and sees that as an opportunity to show that science is faulty.

The author would summarize our current understanding of our science about a big topic, then criticize it, and then present alternate ways of looking at it, and then present some of his usually far out conclusions.

I would say that there was almost nothing new in this book that I hadn't read elsewhere. All of the statements on matters about science or philosophy I had read elsewhere.

The author has a pernicious teleological bent to his presentation. He really seems to like Fred Hoyle. He'll quote the absurd statement that life forming randomly is on the order of a tornado sweeping through a junk yard and making a 747. The author's favored model for the universe seemed to be Hoyle's QSSC (probably stands for quasi steady state crap, I'm too lazy to look it up and I know the 'C" does stand for crap). He really thinks fine tuning of the universe is the best explanation for the explanation of some of nature's constants. He could be right, but there is a reason why we don't measure the heights of basketball players in light years. They would be the same to the 17th decimal place just as some of the 'fine tuned' constants are. He at least owes the reader the other side. The author is not a creationist but he does quote from the absurd creationist Michael Behe favorably, and I would think a host of creationist believers would love this book since he offers a plethora of criticisms on the standard explanations of science.

He believes 'psychic energy' can explain certain natural phenomena, that entropy (the second law of thermodynamics) needs a fifth force to explain how it is constantly increasing, that insight should be put back into philosophy instead of only being reason based, the start of life is a near impossible event and so on.

I have nothing good to say about this book and can't recommend it. I don't know why I finished it. It reminded me of the movie "Plan 9 from Outer Space", I just wanted to see what other disasters awaited. I regret starting this book, and definitely would not recommend it to anyone.

Manuel Antão says

If you're into stuff like this, you can read the full review.

N-Dimensional Topology: "Cosmosapiens" by John Hands

Me: 'Whatever happened to Occam's Razor? This stuff makes Plato's Forms look like one of the most sober and parsimonious metaphysics imaginable! I would like to point anyone interested in this stuff to an amazing non-performance of a book called "Cosmosapiens" by John Hands. Hands has the nerve to subject all these theories (the Big Bang, Inflation, multiverse theories and much more) to the actual evidence we have, rather than arcane mathematical models that try to extrapolate from it in various directions, or else wild speculation (or both). None of them come out well. The universe looks as if it is much other than these theorists try to paint it.
