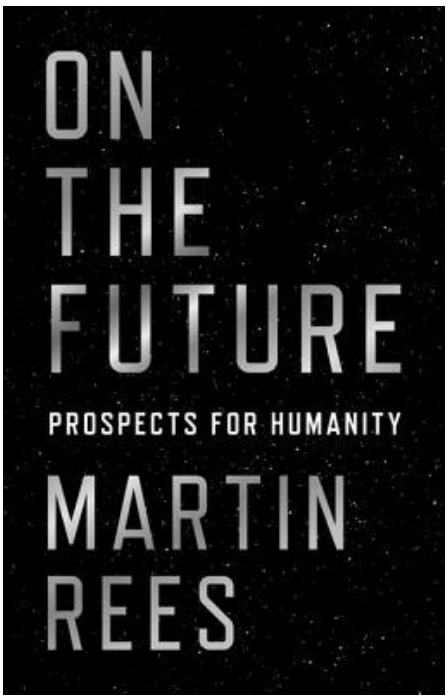

On the Future: Prospects for Humanity

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A provocative and inspiring look at the future of humanity and science from world-renowned scientist and bestselling author Martin Rees

Humanity has reached a critical moment. Our world is unsettled and rapidly changing, and we face existential risks over the next century. Various outcomes--good and bad--are possible. Yet our approach to the future is characterized by short-term thinking, polarizing debates, alarmist rhetoric, and pessimism. In this short, exhilarating book, renowned scientist and bestselling author Martin Rees argues that humanity's prospects depend on our taking a very different approach to planning for tomorrow.

The future of humanity is bound to the future of science and hinges on how successfully we harness technological advances to address our challenges. If we are to use science to solve our problems while avoiding its dystopian risks, we must think rationally, globally, collectively, and optimistically about the long term. Advances in biotechnology, cybertechnology, robotics, and artificial intelligence--if pursued and applied wisely--could empower us to boost the developing and developed world and overcome the threats humanity faces on Earth, from climate change to nuclear war. At the same time, further advances in space science will allow humans to explore the solar system and beyond with robots and AI. But there is no "Plan B" for Earth--no viable alternative within reach if we do not care for our home planet.

Rich with fascinating insights into cutting-edge science and technology, this accessible book will captivate anyone who wants to understand the critical issues that will define the future of humanity on Earth and beyond.

On the Future: Prospects for Humanity Details

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From Reader Review On the Future: Prospects for Humanity for online ebook

Koohyar says

Although there were some really good parts in the book, but nothing is discussed in depth. Only superficial ideas.
If you want a casual read, go for it

Andy says

I didn't feel that the way this book was marketed at all reflects its contents. It has no real unifying argument or point to make, but is just a collection of the author's brief thoughts on various subjects. Sadly he never really spends long enough on any one topic to say anything interesting or new about it. Perhaps it would be good for someone who doesn't read the science section in the newspaper and has never read other popular science books on the various topics addressed here, but otherwise you're unlikely to find anything new. And if you are new to these topics and want a deep dive, there are better books for that.

Mike Stolfi says

A lot of very practical ideas that have little likelihood of ever happening because we evolved from scavenging pack oriented hominids, & our primitive social order still trumps all else.
It's too bad, really.

Chris says

Compelling and instructive.

Brian Miko?ajczyk says

Astrophysicist and former President of the Royal Society, Martin Rees discusses his concerns and predictions for the future of humanity. He is concerned with a nuclear apocalypse, climate change, and an extinction-level asteroid impact. He also predicts our future in the cosmos if we don't kill ourselves first. An interest read, but nothing new brought to the table.

Dan Graser says

There have been a number of books written in the past decade by eminent scientists about their hopes, predictions, and worries for the 21st century and beyond. This latest entry from Martin Rees is a fine survey

of several of these ideas written with his customary elegance and erudition. What he does a fine job of here is maintaining a level-headed assessment of humanity's greatest challenges and how scientific/technological innovation will likely, and somewhat ironically, be the necessary solution to many of the problems for which it was the fons et origo. Rather than relying on alarmist obstreperousness or starry-eyed (pun-intended) somnolent wonderings of our future in the cosmos, Rees is very practical with what are the most imaginative yet pragmatic ways of thinking through such forthcoming issues as climate change, manned/unmanned space exploration, the future of armed conflict, managing population growth, and the rise of AI and all that entails with future gene-editing and human enhancement (no, not dealing with the issues presented in the spam emails you already receive). This is a fine primer on many current issues and a very rewarding yet easy read thanks to his clarity of expression.

Chuck says

I recently saw Martin Rees speak in Chicago and bought this book. It reads very much in the same way Rees speaks - bright, sparkly, optimistic, but also direct and opinionated about the dire challenges our world faces. An astronomer by trade and training, he is adept at addressing a wide range of scientific, political, and philosophical issues - Rees certainly defines the term polymath. It's a fairly brief book that seems to be his report on the state of the world and science. It may require some patience from those who need a rigidly linear format - he bounces around a lot. But, he always brings it back home again to make his point. An informative and sobering report from this sage whom I'm glad I discovered.

Peter Mcloughlin says

It is okay. Not much material that I haven't seen in other places even in other books by Rees. Still, it is good to meditate on the meaning of the next one hundred years which could be critical for the human project. My gut feeling is if, and it is a big if, we can make it out of the 21st century in one piece the human project will last a long time.

Lisa says

"A feature of science is that as the frontiers of our knowledge are extended, new mysteries, just beyond the frontiers, come into sharper focus."

To be able to look into the future, one must see the present in its complex, chaotic, simultaneous varieties. With charm and clarity, Martin Rees moves from the status quo of humanity in the Anthropocene to different outlooks on the distant and not-so-distant future.

What do we do with ourselves at a moment in time when we have the knowledge, skills and understanding to change our own biosphere? How do we solve the issues of overpopulation, pollution, climate change, the impact of biotechnology, nuclear power, and interconnectedness via small but smart devices of our own making? And what about artificial intelligence and machine learning?

All these questions are important to humanity as a whole, as a species, and the way we deal with the world we have created for ourselves will have far-reaching impact on our children and their offspring.

Martin Rees avoids the scaremongering that is so common these days, and he finds conciliatory approaches to even the most difficult problems, such as the power of religion to block scientific and social progress. His attitude is a quite interesting one: in his own words, he is a practising but unbelieving Christian, thus acknowledging the cultural and social importance of ritual even in a fully secular mind. By embracing the human need for community, one is able to reach out and unite in peaceful coexistence rather than encouraging frustrated drifting off into rigid positions of fundamentalism and fanaticism. This obviously can be adapted to any other religion as well as to any political ideology, in order to rein in the populist power of irresponsible cult personalities, driving their own interests on the fear of their followers.

The scariest part of his reasoning remains the fact that we need more critical thinking skills and deeper knowledge and understanding than ever before to tackle the complexity of the issues we face as a species. As I was reading another eloquent scientist's account of the development of our brains in the age of digital reading just before I started on this one, I sensed a moment of spontaneous panic - as we are drifting away from exactly the kind of skills we need to enhance, according to both Martin Rees and Maryanne Wolf in her Reader, Come Home: The Reading Brain in a Digital World.

To me as an educator, it sounds like hard work. But it has to be done. Humanities need a comeback in our technocrazed world - for a responsible approach to our own power. Humanity needs to take on a better parent role for planet Earth and its inhabitants than the ancient monotheistic gods did according to the myths. It can't afford to dump the creation to rule itself. Power without responsibility and accountability must become a thing of the past. Patriarchal human-gods have to make space for international collaboration in the humanities and natural sciences to create a livable habitat for all.

For a future!

Stephen Douglas Rowland says

Unoriginal -- all this information can be found in similar, better books, and Rees's nonstop use of unnecessary quotation marks nearly gave me a heart attack. Fire your editor, dude.

Brian Clegg says

When I was at school we had a great young history teacher who got everyone in the class to go out and buy a copy of Mao's Little Red Book. Some parents were decidedly unhappy, but it was a fascinating exercise, and though I found most of the contents impenetrable drivel, it was something I was really glad he did. The Little Red Book was more formally The Thoughts of Chairman Mao and this little black book is not Martin Rees's social contacts list, but rather The Thoughts of Astronomer Royal Rees.

What we get is a fairly loose collection of Rees's thoughts on life, the universe and everything, from climate change to religion - though (not surprisingly) it concentrates on scientific matters more than anything else. As the subtitle Prospects for Humanity indicates, Rees indulges a little in that most speculative of ventures, futurology, but not to an extent that the book becomes one of those interminable collections of thoughts that are either bright and bushy-tailed 'The future will be wonderful!' or dark and dismal 'The future is dystopian, haven't you seen Blade Runner?'

There's nothing particularly new here, but it is interesting to see what one of the grand old persons of British science (and, by all accounts, a jolly nice chap), Rees has to say on the matter. Oddly, the parts I found more

interesting were those more removed from his fields of expertise. So, I felt quite engaged with the lengthy section on climate change and where Rees discusses his view on religion. This is very refreshing when compared with the that of the fundamentalist atheists. Rees tells us that he does not believe in God but does sometimes go to church, as he likes being involved in the ritual of his cultural heritage. This seems to me a far better attitude than berating anyone with religious beliefs or practices for their stupidity.

The part I thought least effective was where Rees dived into cyber futurology. While it was good to see that he was sensibly sceptical of the widespread acceptance of self-driving cars and the idea that everyone will abandon car ownership, his consideration of AI and machine learning seemed overly optimistic, compared with the more realistic approach, say, in Gary Smith's The AI Delusion.

There was also a useful analysis of the nature of science, on the whole de-stressing the 'scientific method' and emphasising the more ad-hoc approach that really happens. Rees also makes it clear how important it is for the general public to be more aware of science, as decisions about the future direction of science and technology influence us all and should be made by us all, not just as scientific technarchy.

All in all, On the Future proved genuinely interesting. I can't give it more than three stars as it feels rather bitty and is perhaps too personal if you don't happen to be interested in Martin Rees - but I am interested and am really glad I read it.

Peter Tillman says

"The trouble with predicting the future is that it is very hard." -- Yogi Berra

Martin Rees gets off to a weak start in this slender book, in which (so far) he has little of interest to say. Or so is my impression, halfway in. I'm surprised, as I read the book because of Sabine Hossenfelder's reco, and I liked her "Lost in Math" a lot. Others like Ree's book too, and I suppose I'll at least skip ahead. At least it's short! Tentative 2-star rating based on the first half. The first section is truly dire.

Section 1, Energy and Climate
He’s drunk the “clean energy” Kool Aid, in the service of Decarbonizing to avoid Climageddon…. None of which is remotely likely to happen, in my view. And I’m pretty knowledgeable on both topics. He does give a weak thumbs-up to nuclear power. You can't possibly run a technical civilization on windmills and solar farms! Do the math. He didn't. 1-star to this chapter, pretty pitiful performance for a Distinguished Astronomer. Demonstrating, yet again, that scientists, outside of their area of expertise, have no more credibility than anybody else!

Section 2, Biotech and AI
A little better, but Rees has little new to offer, for me anyway — I keep up on these topics too. One bit was new-to-me: India is using the vein patterns in peoples’ eyes for their National ID program. They have found no problem unambiguously identifying something like 1.3 billion individuals in the country. Impressive! I don’t know how far along this program is.

A striking statement around p. 96 (hc ed): a “progressive govt” should provide the same amenities to all citizens as are now available to The Rich. Spoken like a good Fabian Socialist! He gives no indication of how such an ambitious program is to be financed, and one is reminded of Margaret Thatcher’s tart observation that such programs quickly run out of Other Peoples Money.

Section 3, Further Future.

I haven’t finished this (and may not). In essence, his intermediate-future projections are (in my view) way behind those of our better hard-SF writers, such as Charles Stross and Ken MacLeod. Again, Rees doesn’t seem to have that much of interest to say. The book came due at htis point, and I don't plan to return. Nor do I recommend it. Its chief virtue is its brevity. Which, sadly, is matched by its lack of meaningful content. Or worse, misleading content. I read (or skimmed) about 2/3 of the book.

YMMV. Sabine Hossenfelder wrote this brief review for the WSJ:
"Among the books I read this year one that stood out is Martin Rees’s “On the Future.” It’s a remarkable book not only because of the subject—the prospects of humanity—but because it is so reasonable. You almost get the sense it’s still possible to have rational debates. This isn’t to say I agree with Mr. Rees on all his points. That would be some surprise given his disparate subjects, from the threat of nuclear war to climate change, artificial intelligence and fleets of tiny robots exploring interstellar space. But Mr. Rees largely manages to steer clear of both fear mongering and cheerleading. The question of how we should deal with new technology has no easy answer, and the author doesn’t pretend that it does. Instead, in each case he lays out the important points to consider. Alas, Mr. Rees doesn’t contemplate the most obvious challenge we face, which is that we are very bad at communicating and identifying relevant information in large communities. The most lucid exposition of technological risks won’t help if we collectively disregard it."

D.L. Morrese says

This is a brief and superficial overview of what and where we are (in cosmic terms) and of the challenges we face as a species. It's a well-written summary, but there are no startling revelations or insights. Rees's reasonable recommendation for humanity is, well, to be reasonable. I don't think he's anymore optimistic about this happening than I am. Humans are not known for reacting rationally, especially in a crisis. Still, somehow, we seem to muddle on, which is actually what gives me hope for the future. We seem to be good at pulling our asses out of fires we've lit and subsequently sat in.

BlackOxford says

The Bleakest of Expectations

The substance of this book is scientific, namely the most important threats to human life on Earth and their elimination or mitigation. But Rees’s intention, of course, is political. He understandably wants to contribute to the generation of a consensus and provoke rational cooperative action - on tax, on technological development, on research priorities, on government funding for science, on sociological attitudes and even on the structure of politics itself. It is this last which is probably the most important but about which Rees has almost nothing to say. It is this absence of a remedy for politics that I find the central and most frightening aspect of the human condition.

Rees believes that economics can take care of some issues - just being more efficient in fuel usage and re-cycling of material like steel are *“win-win”* for everyone involved. Other problems require international coordinated planning and direction - global warming for example. He suggests the United Nations as the central body to supervise such efforts. So one might call Rees a political pragmatist: use the market - including the democratic ‘electoral market’ - where possible and a benign dictatorship where necessary.

There are of course a whole range of political possibilities which sit in between the radical neo-liberal and the radical socialist. But these two set the rough boundaries of the political experience of humanity. The

Scylla and Charybdis, one might say, of human potential. Beyond either limit is merely national shipwreck and chaos, including the end of civilized political activity.

I am incompetent to comment on the scientific credibility of what Rees has to say about the technological solutions which seem most promising to keep the planet habitable. Obviously there is a necessary debate which will persist among professionals as they carry out their research and respond to innovations. This debate is conducted within certain rules of accepted scientific method, logic, and other 'tools of rationality'. Such debate is not without its political aspects - about things like what constitutes evidence, the credibility of individual researchers, and the assessment of the weight of proof on various sides of an argument for example. But science is a constrained politics. Its criteria of value, of what's important in any discipline, while not fixed, are fairly stable.

Politics outside of science are an entirely different matter. There are no political checklists by which good and bad politics can be distinguished. And certainly whatever values, criteria of correct action, prevail at any moment, there is little hope for their stability. Even just realizing these values - economic growth or more equitable income distribution for example - will change what's important in general politics. In a sense, therefore, there can be no real or lasting political progress. Politics is a pre-rational activity, one which seeks to establish which criteria, which values, are appropriate in the moment. Rees is making the case that scientific values should prevail.

The problem is that Rees's case for the interests of science does not cope very well with the wider interests of human beings. Idealists may be concerned about freedom of speech; realists about the degradation of the oceans, ecologists about the loss of species. Most may be simply worried about their chances for survival or employment or advancement. Whatever their situation, it is inevitable that people, and the political groups to which people belong, will have different views on priorities, and the correct actions to address them. Politics is the process by which these views are reconciled, compromised and turned into reality. In this process science is just another set of interests.

This has profound implications which most of us would rather not think about too carefully. One person who has done, however, is the Nobel Laureate economist, Kenneth Arrow. In the early 1950's Arrow formulated what has come to be called his Impossibility Theorem, a sort of rule of logic for group decision making. Like Einstein's Theory of Relativity in Physics, the Impossibility Theorem, although hardly as well known, is at first somewhat difficult to grasp. But once it is understand, it is possible to see its effects everywhere - from democratic politics to corporate decision-making to family feuds.

The proof of the Impossibility Theorem is fairly complex. But its conclusion can be stated simply: **For any decision to be made by a group, if the members of that group have even slightly different criteria of correct action, interests, or values, the decision agreed upon will be that which everyone can accept but which no one wants.** Once admitted to consciousness, the Theorem explains many otherwise unexplainable phenomena - from the prosecution of wars, to the election of Donald Trump. The consequences of the Impossibility Theorem are not occasional 'glitches' in decision-making, they are the rule, that only rarely result in anything that a scientist, or any fully aware person, could call rational.

So Rees's confidence in either the market or in the capacity of democratic government to address the issues he raises is clearly whistling in the dark. Arrow will prevail as it always has done. Given the urgency of many of these issues, it isn't at all likely that any kind of rational consensus can be achieved even if all his views about the future were accepted in their entirety. So does the future of the planet lie with the establishment of a benign dictatorship, perhaps, as Rees suggests, executed through the United Nations? Well certainly not if the United Nations operated as it does now as a trans-national committee representing national interests.

But suppose there was a ‘top-man’ at the UN, a world leader who had been given the authority and the military power by its members to enforce Rees’s scientific agenda. Is our global future dependent upon rooting out the roots of the Arrow problem by eliminating the inherent group decision-making irrationality of democratic politics?

Unfortunately, even such a dictatorship is incapable of pursuing the scientifically rational agenda. The reason is once again simple: The first rule of power, its Prime Directive, is the maintenance of power. In other words, power has its own inherent interests. These interests are perfectly rational - without power it can do nothing. Therefore, even in scientific terms it must oppose the rationality of science. Trump’s recent attempts to trash science - from his refusal to recognize global warming to his blaming inadequate ‘raking’ of brush for California wildfires - is an example of such rational opposition. It is rational according to the demands of power. Every time the man makes such crazy assertions, he solidifies his political ‘base’, whether he believes what he’s saying or not.

Trump is not alone in his demonstration of the Prime Directive of power. Rees quotes the president of the European Commission, Jean-Claude Juncker, who makes the point unequivocally: *“We all know what to do; we just don’t know how to get re-elected after we’ve done it.”* This from a man who is well-insulated from the interests of the hoi polloi of Europe. Even dictators who are immune from the tedious conventions of democratic politics, have politics to contend with. Rees doesn’t seem to take this basic fact at all seriously.

The question begged by Rees then is ‘What political process is capable of addressing the kinds of issues that confront humanity?’ The sad answer is simply ‘None’. Nothing on the entire spectrum from any sort of representative democracy to the most absolute of dictatorships holds the solution to the Arrow paradox or the prime directive of political power. We seem to be in the realm of the miraculous. So I suppose mass conversion to some sort of global religion might stand a chance. But the probability of such an event seems less than that of the human race emigrating to some distant planet to escape the conditions its very existence creates.

I can only hope that someone sees where I’ve gone wrong.

Tasha says

This book covered so many things: AI, space travel, climate change, biotech, and more. I loved how this book gave such a wide-ranging overview that I (a non-scientist) could easily grasp.
