HOUSE OF LORDS

Risk Assessment and Risk Planning Committee

Corrected oral evidence: Risk assessment and risk planning

Wednesday 26 May 2021

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Watch the meeting

Members present: Lord Arbuthnot of Edrom (The Chair); Lord Browne of Ladyton; Lord Clement-Jones; Baroness McGregor-Smith; Lord Mair; Lord O'Shaughnessy; Lord Rees of Ludlow; Lord Robertson of Port Ellen; Lord Thurso; Lord Triesman; Lord Willetts.

Evidence Session No. 25 Virtual Proceeding Questions 242 - 249

Witnesses

I: Robert Harris, Author; Adrian Tchaikovsky, Author; Peter F Hamilton, Author.

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Examination of witnesses

Robert Harris, Adrian Tchaikovsky and Peter F Hamilton.

Q242 **The Chair:** We now move to our second panel on the Lords Risk Assessment and Risk Planning Committee. This panel has three science fiction writers, who also write other books. I welcome all three of you: Peter Hamilton, Robert Harris and Adrian Tchaikovsky. You are most welcome. You will have the opportunity to correct the evidence that you will find on our website in due course.

You might be wondering why you are here. The reason you are here is not just that some of our witnesses have suggested that it might be a good idea for us to take evidence from fiction writers; it is also that we as a committee have worried that policymakers lack imagination. As politicians we suffer from a lack of imagination, and we might not cater for things unless we have experienced them or read about them elsewhere. We might not be able to look forward to what might be coming.

You are particularly adept at imagining what might be coming. How can we get round this issue of a lack of imagination? Who would like to begin? Adrian Tchaikovsky, I see that you are not muted and you are topmost on my screen. Would you like to begin?

Adrian Tchaikovsky: One thing that the last couple of years has shown is that as a society we are not necessarily equipped even to deal with threats that we can imagine particularly well, let alone the ones that we have yet to think about.

One idea that came out of the previous discussion was that of a systemic-level approach. If we are looking at things that we have not thought about—any of those very left field problems—they will probably need a completely different solution, but underlying that would be a common system of how we react, respond and organise under pressure. I think that would probably be the most useful problem to focus on. Does that make sense?

The Chair: Yes, it does. Thank you very much.

Robert Harris: Good morning. Thank you for having me. It is a rather unexpected pleasure. I do not think of myself as a science fiction writer, to be honest, but more as a historical, political writer.

One works, to use the phrase often used this morning, in a silo as a writer. The last thing that I would do if I were you is invite a load of novelists on to a panel; I cannot think of anything more likely to waste time. One dredges up stories, and in my case they are often to do with the collapse of societies, be it Cicero's Rome or Nazi Germany, or, in *The Second Sleep,* Britain, simply because they are fears within me that I articulate and turn into stories. That is what I draw on. I do not know that I can offer any great lessons to policymakers. Novelists and creative people provide a climate: Huxley with *Brave New World*, Orwell with

Nineteen Eighty-Four; even EM Forster wrote a science fiction prediction of the internet, I think. We do not sit in committees. We help to stimulate the popular imagination.

The Chair: Peter Hamilton, in your Voyage trilogy, you imagine worlds that ours might become. How do you do that?

Peter F Hamilton: First, thank you very much for having me on. For science fiction writers—I am sure Adrian would agree—it is a question of extrapolation of all technologies. You have to work out how that will affect society and what knock-on effects individual technologies will have on society.

To go back slightly to your question of how we deal with unexpected things, communication is the key. There has been an explosion of communication technology recently—I say recently, but mean the last 20 or 30 years—and this interconnectivity mean you wanted something out of left field, so you called us in o see how this works. There is a huge number of people available to the top of an organisation organising responses—it will have a huge list or database of people they can call on. Communication is absolutely the key.

The knock-on effects of technology, and the way people are not expecting it to be used, certainly play quite a large role in the modern futuristic societies that we come up with. To put it very basically, the telephone has expanded into the internet and we can all talk today. It will also be the instrument used to fire nuclear weapons. It is the same basic principle. It can be used and misused in this respect, like all technologies. It is by deploying the unknowns for which technology can be used that we build our worlds.

The Chair: Thank you.

Q243 **Lord O'Shaughnessy:** I have been very much looking forward to this session as an admirer of all your work.

It strikes me that what you all do brilliantly is understand, in a very deep way, the potential and risk of technology, among other things—but that in particular—and harness that to your imagination around the consequences it might have.

As Lord Arbuthnot was saying, the Government are not very good at thinking like that, and will probably never be very good at thinking like that. How could we harness this in a systematic way? Adrian Tchaikovsky mentioned trying to build a more systematic approach that would underpin this kind of planning, but that systematic approach will not succeed unless it is capable of harnessing the mindset that each of you embodies. Do you have any thoughts about how that could be done in a systematic way rather than a random or episodic way?

Peter F Hamilton: Again, it is this ability to call on the relevant experts at any given time. That would obviously take preparation. You would have to build up a database of who knows what about individual subjects and who could contribute to it.

Again, we are back to this issue of communication and how the information is gathered and applied. You would need several stages. You would need the people like us, if you like; you would then need the people in the control room at a disaster interpreting what we are saying, listening to the advice and then making the decision. You would need a very clear filter process for all the wild-card ideas that are coming in. It is all very well having them, but if you ask five science fiction writers for an opinion on a subject, you will get five very different answers. I know that from experience. It will be built in layers, like a pyramid almost, I would imagine. You get the basic information, you filter it, and you apply it.

Robert Harris: One of the joys of being a writer—and different from being a politician—is that you can dream up the problems but you are not required to provide the solutions. I often do this. For instance, in *The Second Sleep* there is the idea that society has become so sophisticated and interconnected that a relatively small thing could go wrong—a cyberattack might be launched—and suddenly everything would go rapidly, because it would spread like a contagion.

I can see the potential for that happening. Sophisticated societies do collapse. Every civilisation collapses. You cannot think of one that did not face some terrible crisis, partly because they became so sophisticated. Whether I am therefore the man to go to for a solution to that problem, I do not know. Certainly I feel that my role is scaring people and stimulating their imaginations, rather more than saying how we might fix it.

Adrian Tchaikovsky: What we can do—Peter absolutely correctly was talking about the idea that we take the current paradigm and extrapolate from it in various realistic, or not remotely realistic, ways—is open the door to the possibility of modelling, testing, or even localised experiments, of how you can deal with hypothetical changes and these extrapolated possibilities, whether it is in a non-military sense, a war games exercise, or whether you are running a virtual model, or anything like that.

We can give you parameters: "What if this? What if that?" I think there are ways of at least running the experiment to find out where it might go and how people might react.

Lord O'Shaughnessy: Probably, as Robert Harris said, it is not so much about looking for solutions but about looking for the right provocations, and to expand the realm of possibility so that a much broader range of solutions can be developed. Thank you, that has been helpful.

Q244 **Lord Robertson of Port Ellen:** Some people said that the attacks of 9/11 in New York and on Washington were due to a failure of intelligence, but other people have said that it was also a failure of imagination—we did not really imagine that anything like that was going to happen. You all have very well-developed imaginations to be able to write the books that you do. What kind of disaster—the prospect of it—keeps you awake at night?

Robert Harris: I wrote about it in two books. One was *The Fear Index*, about artificial intelligence and the financial community. As I was writing the book, in 2010, there was the flash crash, you may remember, on Wall Street. In the end it did not do any long-term damage, but it was a warning of just how alarmingly things could develop, with so many transactions now taking place, and the system getting out of control.

Then there is *The Second Sleep.* I have been haunted by the idea that so much of our economy and life has moved into a digital, almost imaginary, realm, and has left policymakers and society behind. We follow technological developments without necessarily thinking through the consequences of them all. We have lived through a revolution and we are now just looking around and trying to work out how we might deal with it.

The possibility of a collapse in communication is very serious. There were two events in my life that really stimulated me into this area. The first was the tanker drivers' strike in 2000. You may remember—I live in the country—that this involved a relatively small number of people; this was not the National Union of Mineworkers, but it was sufficient to cause real fear. Supermarket shelves were emptied. There were queues at petrol stations. People could not get to work. One felt society slip slightly under one's feet.

Then of course there was the financial crash of 2008 and the fear that the ATM system might break down and it might not be possible for people to get money. I remember talking to someone at that time, an expert who was drafted in from the City to help with contingency planning. I asked what was going on, and he said, "We have spent the first two weeks discussing the emergency distribution of food".

It is that possibility. Imagine the pandemic we have all just been through without Zoom—without the communications that we all have that keep us sane to some degree. If you took that away, it would lead to a really serious breakdown. That is the nightmare that keeps me awake at night.

Adrian Tchaikovsky: There are a couple of issues that are particularly on my mind, one of which is very human and one of which is very global. The global one is large-scale ecological collapse with oncoming climate change, which will be like dominoes, basically. Once certain elements of the system go, just as Robert was talking about with complex systems, everything else will go with it. We are already seeing it in some ecosystems in the world, but it will also affect our own agriculture. A lot of species that we rely on to feed everyone on the planet will become impossible to grow where they currently grow, or possibly grow at all. You can imagine the panic at the idea that the shelves will be bare being so much more magnified when the shelves are bare because there is literally nothing anywhere to put on the shelves, and it is not just that it cannot get from A to B.

The other thing is the whole post-truth society; the idea that there is such a wealth of information that it becomes impossible to know what

information you can rely on, especially coupled with things such as deepfake video, where you cannot rely on your own eyes. There is also the way in which technology—our phones and tablets and so forth—become more and more part of our lives, such that our whole world is being filtered through that utterly unreliable interface, and we get to a point where it is literally impossible to know what is going on in the world, not because we are being kept in the dark but because, effectively, there are far too many lights.

Lord Robertson of Port Ellen: Mr Hamilton, what keeps you awake at night?

Peter F Hamilton: To go back to 9/11 and the failure of intelligence, I would say that we did not expect that kind of application. We were not used to the idea of somebody being prepared to sit in a plane and do that. It is a failure of not understanding extremes.

To go at a slight tangent to that, there are a lot of things happening slowly to which we acclimatise and then believe that that is it. For instance, at the moment, with 3D printing you can print a hand gun in your home; it is made out of plastic and it is not very good. But stuff such as sintering is coming on. What kind of regulation will there be for this? At the moment you can send for a roll of plastic through Amazon and pop that into your printer. What happens about the kind of grade of steel that can be used to build a hand gun? Is anyone thinking about regulating that? Can I wind up just ordering some pellets off Amazon, putting them into my printer and producing a hand gun for myself? This is the kind of thing that needs to be thought out in advance.

Will we develop home pharmacological printers? Can we just put in a programme for an aspirin, and if we can do it for an aspirin, what about everything else? Several years ago, I talked to some people working in the labs in Australia, who were getting pills off the street that had been made fairly competently. These are not industrial chemists; these are people who have been through a chemical course at university. They were producing chemicals that the lab did not understand what they could even do to a person when they took them.

There is stuff out there that we are not looking at that will impact us quite severely. If you have this ability to home-produce anything, how can you ultimately regulate it? What societal balance can you get from that?

Lord Robertson of Port Ellen: That is very interesting.

Lord Clement-Jones: I really want to develop that question into talking about what emergent or still-fictional technologies excite you most. Are you concerned that new technologies may create unforeseeable and existential risks? Of course, you have partly answered that, Robert, with *The Fear Index* and AI, and Adrian you have just talked about 3D printing, and so on. Perhaps I could take Peter first: what would your answer be to that?

Peter F Hamilton: Technologies that can pose a threat?

Lord Clement-Jones: Yes, that excite your imagination and that no doubt you would want to express concerns about or write about.

Peter F Hamilton: I have written about kinetic weapons through orbit. We are seeing a huge increase in commercial space activity—I think it is called the Space Coast in Florida. Falcon rockets were launching 60 Starlink satellites at a time. I think it was on 9 May this year that the debris from China's Long March 5, which had just put up the first section of its space station, hit the Indian Ocean, very close to the Maldives. That was not even designed as a weapon; that was just the debris that was left over from it coming through the atmosphere.

To come full circle on this, in the 1950s, at Boeing, Jerry Pournelle, who went on to be a science fiction writer, developed Project Thor. A tungsten rod in orbit will survive, very easily, travelling down through the atmosphere at orbital velocity. The impact of that is colossal, and there is absolutely no defence against it. We have no regulation watching out for what goes into orbit at the moment. I think that there is a UN agreement on nuclear power. You can put nuclear material up there if you are going to use it for something like the Voyager probe or the recent Mars expeditions, but there is no organisation to assure what is being launched into orbit, and we will get hundreds, if not thousands, of satellites up there over the next few years.

Lord Clement-Jones: Robert, you partly answered that with the two books that you mentioned. Are there other things beyond those now that, looking forward, you are concerned about?

Robert Harris: As I say, I differ slightly from my colleagues here in the sorts of books that I write, and I would not be an expert on these sorts of issues.

I suppose what worries me the most is us human beings as a species. The development of these extraordinary devices we carry around with us, which give us access to pretty well all the world's literature, knowledge, art and music in our pockets, is so astonishing that one would have thought it would be the flower of the enlightenment, and that we had finally reached an ultimate point of knowledge and wisdom. What do you find it used for? Superstition, hysteria, conspiracy theories.

My worry, in a way, is the old Adam who lurks within us. Suddenly any fool sitting anywhere can cause immense distress to someone else, or start a rumour, or a panic, or a new religion, or a political movement. As a society we have lost the ability, channelled through democratic means and the press and media and so on, built up over generations, to cope with ourselves. I find that troubling.

I do not necessarily worry about particular piece of technology, other than the licensing of us and our instincts. The similarities between Twitter, say, and the Roman mob at the forum—hang Cinna the poet

rather than Cinna the senator—concern me. I think we as a society at some point will probably have to address this and try to do something about it.

Adrian Tchaikovsky: I think Robert has hit the nail on the head. I do not feel that any particular potential future technological development is in itself problematic. It all comes down to how it is used. For example, I am very leery at the moment of the Boston Dynamics robotics development and its deployment in law enforcement. That is not because I fear that the robots will rise up and take over the world; it is that the robots, effectively, provide a distance and a plausible deniability, whereby people can do terrible things and then point to the robot and say that it must have gone wrong, or something like that. It is this distancing effect between actor and action that a lot of this technology produces that potentially allows people to do terrible things without any kind of responsibility or comeback; that is where a lot of my own writing goes.

Lord Clement-Jones: I think that you have really emphasised the need for ethics in technology development, but that is another story. Thank you very much.

Q245 **Baroness McGregor-Smith:** What an amazing session. I am in awe of you all and what you do.

The question I have for you today is: how do you find ideas for disaster scenarios? I am thinking about your imaginations. Where do your ideas come from? We have discussed some of them already, but do they come from real or historical threats? How do you do it?

Peter F Hamilton: It is, as I said before, a lot of extrapolation. You look at any particular technology, you look at where it is, you look at where it has come from, and try to see the potential for it in the future.

To blow my own trumpet, I came up with something called organic circuitry tattoos, which is basically a phone you can have tattooed on your hand, and it grew from that. I took into account Moore's law, which is that everything gets smaller and cheaper with every generation. When I was a kid, not a lot of people had tattoos, and now they are absolutely commonplace, so you just combine the two. We are already seeing transfers that can be put on for monitoring health and that kind of thing. Although it is extrapolation, it is a logical process. You just have to put the two together in the right combination, if you like.

Then of course, as we have said, you come to use and misuse. It is interesting, to go back to what Adrian said, that the Boston Dynamics robot was deployed, I think, in New York by the police. The community it was used in was horrified by it. Modern communication allows for that outrage to have a bigger impact these days, so they were withdrawn, as far as I know, because of that.

That is another way in which technology is developing. Before, what would you do? You would write a letter, or try to get to a committee such as this and make your point, whereas now it is faster and instant, and the

rate of change, not just from the technology but from the response to it, in public policy is much faster. How fast it will get I do not know, because there are still a lot of committees, lawyers and legal systems that are quite slow. At that political level, certainly in that instance, it was almost instantaneous, and the day after it was deployed it was withdrawn. These trends are still building on what we have now.

Adrian Tchaikovsky: To complement what Peter said, obviously, a lot of the time when we are writing science fiction we are also writing about the completely out-there stuff that is not plausible, and would not be worth spending billions of dollars to try to prepare against. But frequently, what we are modelling is how society might react to the bigger problem. We are looking at the human factor again. Those are thought experiments that it is well worth running, because if we are dealing with threats that we literally cannot predict, or if we are dealing with the unknown unknowns, we can still look at how we would deal with any kind of hypothetical problem, and how society might bend and fracture and de-form under that kind of huge pressure, whatever the specifics of the pressure are.

Robert Harris: You ask where my ideas come from. I was a political journalist and non-fiction writer, and I have always been interested in how power and politics work, what it does to people, and how we control power and divide it and try to make it less destructive. My starting point is to use the techniques of fiction to answer those sorts of issues.

I verged into science fiction perhaps partly because, as a child, I was obsessed with HG Wells, whom we have not mentioned. He wrote *The War In The Air*, predicting aerial warfare, *The Land Ironclads*, predicting the tank, and *The Shape Of Things To Come*, predicting the blitz in the 1930s. Certainly I imbibed a lot from him that one can use the techniques of fiction to tackle political issues, issues of warfare, and so on. You invent characters and you invent a story, and so many things have a lot more punch than if you simply write down the research, as it were.

George Orwell thought of writing a non-fiction version of *Nineteen Eighty-Four*. He was interested in Burnham and management theories and so on. He decided to turn it into characters and invent this world and Winston Smith, and by doing so he universalised something and made it available to people generations later, whereas a book about Burnham's management theory would have died.

That is what fiction does. It engages the imagination of people and it punches home. I think that the lessons of *Nineteen Eighty-Four*—it is not necessarily accurate in its predictions but it got things so right about the way technology can be misused in a society—are completely timeless, and render it probably the most important and influential novel ever written.

Baroness McGregor-Smith: I tend to agree. It certainly had a huge impact on me. We should perhaps consider what you said when writing our report, so that it is not one of those forgotten parliamentary reports,

and use some imagination to draw on a future. I try to persuade our Chair and our committee to do that.

Robert Harris: You should begin with Big Ben chiming 13 as the committee Chair crosses the Corridor.

Baroness McGregor-Smith: It will be an interesting conversation when we write this report. Thank you very much.

The Chair: Let us hope *War of the Worlds* is a little way off.

Lord Browne of Ladyton: I am tempted to say, "Follow that".

John W Campbell, the American science fiction writer, wrote, or at least so my researchers inform me, that "science fiction is a way to practice in a no-practice area". He explained that by saying, "That is, to consider scenarios that might lead to human catastrophe". My sense, if I have understood this correctly, is that the exchange that you, Adrian, had with Lord O'Shaughnessy and in your answer to Baroness McGregor's previous question said something of the same.

Many stories about atomic bombs were published before World War II, and we have already been told by Robert Harris how well HG Wells predicted the future. My question, which you may already, from your point of view, have answered, is: to what extent can science fiction predict, affect or improve developments, including in science and technology, and their implications for human life, if at all?

Peter F Hamilton: There is a story that the FBI turned up at John Campbell's office asking, "How do you know about this atomic bomb project? It is very secret right now". This was in the middle of World War II.

As Adrian said, the interest for most of us comes from the fact that, although we have changed the technology and built this wonderful future world, humans just do not change. That is where the impact on us is at its most interesting. It is about how we cope with the change that we have all seen in our lifetime, which is phenomenal compared to what it was for the previous number of years. We are sort of coping with it.

It is not a prediction. It is a possibility that we come up with. If we have this ability, how would we react to it? In that respect, yes, science fiction is a huge thought experiment in how we will behave given certain circumstances, and hopefully will continue to do so.

The problem I have is trying to think of new developments far enough in the future and how they will impact, because the amount of research going on in the world at the moment is phenomenal. You cannot keep track of it all. There are a lot of the unknown unknowns out there for us. When we manage to think up something that will affect us, it is an ideal form of experimentation.

Robert Harris: I would like to inject one slight note of scepticism: science fiction can also get things very wrong—as wrong as anybody else, in fact. I grew up in the 1960s and it was all rockets. We were all going to live on planets and be going up to space as easily as catching a bus. That was very much the feeling: *2001: A Space Odyssey* is a great movie but it did not happen. Science fiction failed completely to predict the rise of the personal computer and the spreading of civilisation outwards rather upwards.

You have to be careful. We get it wrong. I go back to what I said at the beginning: I would hate to live in a country run by a committee of novelists. I cannot think of a more dystopian scenario for a novel, actually. I might try it.

Lord Browne of Ladyton: You certainly would not be short of interest.

Adrian Tchaikovsky: To bounce off that, of course, *2001* did not happen in the year 2001, but the current private drive for space travel and space exploration is not a broad-based technological development; it is very much a very narrow enterprise run, for better or worse, by a small number of very powerful people.

Weirdly enough, the dream that was set out in those 1950s and 1960s science fiction magazines is, in a way, what is driving a lot of very high-cost investment and very high-science investment at the moment. Weirdly enough, it has not happened, it did not happen, but it might happen, as I say, for better or worse. I think that is all I have on that one.

Lord Browne of Ladyton: Thank you very much indeed. There is a serious academic work out there by Toby Ord that would be an interesting read for you all about where serious scientists think we are going.

Q246 **Lord Rees of Ludlow:** We have heard that some predictions technologically are visionary, and many are wrong. Will you comment a little more on the difficulty of making these predictions, and even more on the difficulty of predicting the speed at which developments happen, even if we get the direction right?

To bring in Robert Harris, what can you say about predicting the speed of social changes and, of course, geopolitical changes? To make this more of a portmanteau question, would you comment on the fact that there is one change in the last 50 years, which is that any disaster will cascade globally in a way that it may not have done before? Unlike in Jared Diamond's book where you can get a collapse of one civilisation in one country, now anything as bad as that will go global. Those are just some thoughts, and I wonder whether you would like to comment.

Peter F Hamilton: The speed one is an interesting question. As Robert pointed out, we do not have the ship that will go to Jupiter yet, but it is coming along. Adrian and I went last year, I think, to look at the fusion research in Culham, which was inspiring and depressing at the same

time. Fusion has always been 20 years in the future, for the last 50 years. As I say, we looked round this place, and it will happen, but as to the speed and the number of problems they have to solve, it is a question of the more they know, the more they know they have to do.

We cannot predict the progress, the levels of progress, the levels of breakthrough, the unexpected breakthroughs. This is why we tend to set stuff further into the future than 2001.

To get back to this collapse issue, Robert has often said that societies collapse, civilisations collapse, but we are so interconnected these days. The ship that got jammed in the Suez Canal earlier this year was a great point. One ship getting jammed on the corner of Africa has upset global trade. If society or civilisation is this web that covers the world now, I have a feeling that it might be a little harder to break. I am sure it will buckle and twist, and we will undergo hardships, but an overall collapse of society now I think is less likely.

Lord Rees of Ludlow: That is interesting. I wonder whether your colleagues agree with that.

Adrian Tchaikovsky: I am considerably more pessimistic, unfortunately. I have been looking recently at the Bronze Age collapse, which I am sure Robert is extremely knowledgeable on. Basically, it was the end of most of the civilisations in the Middle East around the Mediterranean because—and it is one of the things that we see from the evidence—they were all very interdependent. They were very advanced and had a lot of trading agreements. The problem is that, when a succession of problems hit them, each one of them was trying to reach out to its neighbours, saying, "We need help", but everyone was facing the same problem at the same time. It was dominoes and everything went.

I think we will have the same kind of problem. I have mentioned previously the idea of an agricultural collapse, and that will probably be the big issue in the next few decades. Once you have that, it is a global problem, and it is a global problem that everyone has at exactly the same time. If you cannot eat, you cannot do anything else. It is that whole hierarchy of needs problem.

I genuinely think that we are so stacked together and so interdependent that when something major fails towards the bottom of our global structure, it will have that catastrophic effect, unfortunately.

Lord Rees of Ludlow: You are worried about environmental changes, are you?

Adrian Tchaikovsky: That is the big thing. If we are talking about timescale and the idea of things happening quickly, things happening more quickly than we are ready for is a problem. Things happening more slowly than we are used to dealing with is also a well-documented problem. We are looking at problems that need action now because they will be massive problems in some decades' time if we do not act now, and

that is not the way the human mind works, and certainly not the way the human political cycle works in any way. Getting the will and the massive resources the relevant action would need even to mitigate those problems is really hard.

Robert Harris: On the portmanteau question, I ought to give a portmanteau answer. I have always been interested in the war. Terrorist threats in London, even if they do not amount to very much—a man with a knife or a suspect package at Oxford Circus—can paralyse the capital in the way that 300 or 400 Luftwaffe bombers did. The potentially devastating consequences of a cyberattack on the pipeline in America threatened petrol supplies on the east coast recently.

We live in a world in which very tiny things have huge ripple effects, especially to do with fear and terror. That is profoundly troubling. It is not that we are less resilient as people—I do not think that—but we are wired for alarm in a way that our parents' and grandparents' generations were not. Therefore, the threat seems to me to come from within.

To go back to what I said before, I do not think people have changed very much—the human species does not—but suddenly there are things that stimulate us and alarm us that never existed before. I did a lot of work about Cicero and ancient Rome, and, if you look at it, we should not feel superior to these past epochs. No one is making better speeches than Cicero. No one is writing better poetry than Horace and Virgil. No one is building better buildings. There is not much better philosophy than they had in the ancient world. Are we really very superior to them? No. Why did the Roman republic and, ultimately, the empire fail? We try to look into the future, but perhaps you should have a panel of historical novelists to look into the past to see what went wrong in these societies. I do not know that you could necessarily guard against what brought them down, but it perhaps would be wise to consider what happened to them.

Lord Rees of Ludlow: We talked about 9/11, and that happened because suicide bombing has become more important, I guess, in the last 20 or 30 years. Is that an effect that was really predicted by historians or sociologists?

Robert Harris: It was Tacitus who said that the man who is prepared to die will always be your master. I do not think that civilisation has seen the phenomenon of the suicide bomber, and the fanaticism that makes that possible, before—not that I can think of. On the IRA atrocities and so on, if the IRA bombers had been willing to detonate themselves to die in the attempt, the carnage would have been appalling.

Again, it is the threat coming from within us, what we are capable of as human beings, which has driven that rather than technology. There was nothing high-tech about 9/11. The box cutters cost almost nothing. It was perfectly obvious, if you had reached that level of fanaticism.

I must say one thing as a novelist: if I had dreamed up the idea of 9/11, I would have been reluctant to put it into a novel because people might quite justifiably have said, "You have invented this". The imagination is the pathway to actual happening. That is a disturbing idea, so I think we all probably censor ourselves, and we probably do not have the level of fanaticism to actually come up with these ideas.

Peter F Hamilton: I will come in on that with a historical point. We had the Kamikazes, of course.

Robert Harris: Some of whom survived, interestingly enough. I saw a couple interviewed not long ago.

Q247 **Lord Willetts:** It has been fascinating. There is this thread in the argument about the vulnerability of complex societies. Of course, we understand you are not policy advisers, but your books are, to some extent, warnings about human nature. Is there more to the warnings than those deep truths about human behaviour? Do you actually want people to take heed in some sense of the risks and dangers you identify? If so, how?

HG Wells, whom Robert Harris cited, was also very active in politics and policy. If someone took account of what you wrote, what would it mean; what would happen as a result? I do not know whether that is a fair question. Robert, do you have any observations on that?

Robert Harris: I do not know that the two novels about cybertechnology, *The Fear Index* and *The Second Sleep*, are political statements in any sense, but I feel profoundly worried about those issues. It is the notion of technology escaping from Pandora's box, as it were, which becomes so sophisticated that the world is more difficult than we can cope with.

When I was growing up, my father was capable of taking a motor car engine apart and putting it back together again. He would do this and I watched him do it. Such a thing would be inconceivable now because there is so much computer technology in a car. We are losing touch with our ability to fend for ourselves, to put it crudely.

That is one thing I wanted to touch on in that book. Society has become so sophisticated that we simply do not know as individuals how much of it works, how our food comes to us. Things are so disposable.

There is a deep underlying anxiety, especially among young people, about losing touch with the world, losing touch with the climate, losing touch with the natural world, that we are polluting and destroying things and enfeebling ourselves, oddly enough, at the same time, as individuals.

That is a profound issue and one that I feel quite strongly about. I do not know what government legislation can do about it. It is simply what we are capable of inventing and what the market economy drives. It certainly is putting us into a vulnerable place as a society and individuals, I think, and, unfortunately, the pattern of the past is that it is just when

you think that your society is impervious and the future will go on like this for ever, in the words of PG Wodehouse, that fate sneaks up behind you with a bit of lead piping.

Lord Willetts: Of course recently we have had Sir Partha Dasgupta's report on valuing the natural world, which is partly an attempt to take what you have said and turn it into what it might mean for public policy, especially what we value and how we value it.

Peter F Hamilton: From the novelist's point of view you were asking about what effect it would have. Novelists are a very small but, I hope, important part of making people aware of what Robert just said: of how we are no longer in charge of our world, of how we are not on top of everything we are shown, and we do not understand how everything works any more. I think the awareness of that is growing.

Certainly, to get across the concept of climate change, global warming, whatever you want to call it, has taken a while but we now have got this across. With that has come the economic effect that technology has on us. We cannot repair our cars any more, but I hope we are now getting away from the fact that it is a disposable society. We are all so aware of that.

I have hung on to my mobile phone years past what my children think is acceptable because I do not want to spend hundreds of pounds on something that I will have to replace in five years' time. We are very aware of the ecological effects of a throwaway society. I think that the next generation will come along and the car that we cannot repair will last for 20 or 30 years. We are aware that we cannot keep producing throwaway items the whole time.

I live in a house that is 200 years old. I keep having to repair it, and it costs a lot of money, but I would rather do that to keep something going. The impact of what we are doing now has made us realise how badly we are doing it, and I think that is a great force for change.

Adrian Tchaikovsky: One of the bigger elements in a lot of my writing is empathy. I wrote a book where people run into a planet of giant spiders and basically kind of get along with them. Honestly, if my writing could have any kind of influence, or there is anything people take away from it, it is the idea that we are basically all in it together. We are looking at global-level problems. Even if we transformed Britain into an absolute model of forward-thinking problem-solving, it would not solve the problems because we cannot solve them on our own. We need to solve them with everyone and we need to solve them for everyone. It is that idea of bridging differences. In my books it is bridging differences with the non-human, but it is all about bridging differences within our species as well, because that is the only way any of these problems will get solved.

Q248 **Lord Mair:** This has been a fascinating session. May I ask each of you to say what, of all the books you have written, is the single worst thing that

you have had happen? I know that is quite a difficult question, but of the various things that you have described in your books, what is the worst thing, and how likely might that happen to our society? Robert, may we start with you? Is it a country surrendering to the mob, a volcanic eruption or a modern version of V2?

Robert Harris: I am more cheerful than this output makes me seem. I think that probably it would be the really dystopian novel *The Second Sleep*. There are obviously state agencies out there. Cyberwarfare is a constant thrum going on in the background, and it may be that our defences can hold and we will be fine, but I worry that something could happen, that we will wake up and the ATMs will not work, or the phones will not work, or something of that sort.

I think that was discussed in the earlier session. A concatenation would follow events of panic. There is this idea that London in particular cannot really sustain for longer than two or three days without people being out of food. That was a book that I researched, and the more and more I researched, the truer and truer it seemed to be. I talked to a Government Minister just before the pandemic, who said, "Do you know, we used to have five days' supply of food for the average household, and it is now only two?"

There was someone who had run British intelligence talking about things being picked up about Russia, in particular, and what it was doing in social media and the constant interference. In a strictly practical way, I have grown up and it was nuclear bombs that terrified us the most when I was younger. I wrote a book about chemical and biological warfare, but, oddly enough, I do not think that those weapons are a particularly grave threat. The cyber threat is the one that I could see pulling the pin on our society. That is the most plausible for me.

Lord Mair: Peter, what is the worst thing you have written about which you think might happen?

Peter F Hamilton: Possibly in the last sequence of books I wrote, the *Salvation* ones. It was not a major theme but it was based on what has happened today, which is this total collapse of trust in the systems, whereby you get people who believe they have the right to do what they want because they are in the right, and damn the consequences to everybody else. Social media, non-news and fake news all contribute to that. They all contribute to the breakdown of cohesion and common agreement. I think that is a real worry for us all nowadays.

Lord Mair: Adrian, what is the worst thing you have written about?

Adrian Tchaikovsky: In *Shards of Earth* a moon-sized alien turns the entire planet into an avant-garde sculpture, but that probably will not happen within our lifetimes. In *Firewalkers* about a third of the equatorial band of the planet is uninhabitable because of climate change and a small elite is scrambling to get into luxury liners in space—and that seems to be depressingly likely.

Q249 **Lord Triesman:** Like everybody else, I have loved this session, not least because of having read so many of you guys' books, which is great.

May I ask a question that is not really at the *War of the Worlds* end of this continuum? It is not things happening because strangers come from outer space and do all kinds of damage. It is about the actual world that we are in, inasmuch we understand it, or it is actual.

Which of the things that you have described might lead to a breakdown in civil order? What would trigger a breakdown in civil order and precipitate a collapse of the societal norms that we have perhaps come to expect? I know you have touched on this as we have gone through, but could you crystallise it?

Peter F Hamilton: I think it would be what I just mentioned—trust—when individuals do not believe in the rules of the game and they think the game is rigged against them. It is a reversion to tribalism. They will each gather their own to them and ignore everyone else and go their own way. Although we are quite adaptable, it is taking us time to understand the rush of the changes we have had in the last 30 years. I do not quite see an answer to that one at the moment.

If you introduce legalised fact-checking, for example, you will get a whole lot of people who do not trust the fact-checkers, either. Introducing legislation to stop lies will be interpreted as a form of oppression. I do not quite see the way forward to win that one. I am sure it is out there—I hope it is out there—but it is troubling.

Adrian Tchaikovsky: Civil order is an emergent property of the complex system that we have. It is not imposed top down, for exactly the reasons that Peter was just saying. Unfortunately, I think the answer to the question is that anything and everything we have discussed can lead to a breakdown of social order, because social order exists only by consent. The moment you have a significant shift—the mad panic stockpiling of toilet roll at the beginning of the pandemic is a tiny taste. It is almost like a little comedy skit of the actual real panic and breakdown that can happen very easily, as Robert was saying with the fuel shortage and the tanker drivers. It takes very little to start bringing things down.

In all the cases that we have seen, society has had enough resilience and elasticity to snap back, but we do not need to stretch it too far before something breaks, and when one thing goes, everything else follows.

Lord Triesman: Robert, I think you get the last word on this.

Robert Harris: Over my years of writing I have developed a kind of quantity theory about humanity, not to sound too pompous about it. You have, roughly speaking, 40% of people who are pretty decent, 30% perhaps not quite so decent—forgive me, I am not going to get these percentages to add up—5% who are really quite brilliant and shape and guide society, and 10% who are psychopaths. In history, things go wrong when the psychopaths get into power. If you look back in the past you

see that it happens, Nazi Germany being the most obvious example, but probably also ancient Rome. I think you could make a case for that.

The essence of policy is to keep this 10% from getting their hands on the levers of state, because, once they do, it can be quite hard to prise them off.

For me, that is all-important. We live in an age where some of the technological developments are making it more and more possible for the psychopaths to get into power. Five or six years ago I had a conversation with an intelligent young man—going back to 9/11, insisting that the FBI and the CIA had done it, going on and on. I was trying to be polite, but he could see in my eyes my scepticism as I put up the obvious objections. He said at the end, angrily, "Do you know the difference between you and me? I am prepared to concede that you may be right but you are not prepared to concede that I may be right". In that moment I thought, "Here is trouble". This did not happen so much before we had the internet and before it was possible for these theories to feed, and for people to have as much access to the public debate as the Prime Minister, or anyone else, or the former President of the United States.

We keep circling the same issue, as far as I am concerned. People do not change, but we have given the weapons and means to do much greater harm to ourselves than we have had in the past.

Lord Triesman: Thank you for fantastic insights.

The Chair: Well, well, we have been looking forward to this for months, and I think we were right to do so. Thank you very much indeed to you all for giving that evidence.

I hope that by asking you these questions we have not in any way dispelled the magic of your books. Certainly, you have not dispelled the magic for me of your books, which have given huge enjoyment to us and to the world, and I hope will continue to do so. Thank you very much indeed for a wonderful morning's evidence.