

BIOLOGY TOWARDS 2112: DEALING WITH THE UNKNOWN

“WE ARE THE MASTERS OF OUR OWN FATE”, SAYS CARSTEN RAHBK, PROFESSOR AT THE DEPARTMENT OF BIOLOGY AND DIRECTOR OF THE CENTER FOR MACROECOLOGY AT THE UNIVERSITY OF COPENHAGEN. MEET HIM IN THIS INTERVIEW WITH STEEN SVENDSEN, FUTURIST AND PROJECT MANAGER OF ‘IN100YEARS’.

BY STEEN SVENDSEN, PUBLIC FUTURES
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It is a quiet autumn morning in Copenhagen, and the year is 2011. I am sitting in a meeting room looking at a giant map of the world hanging on the wall, and it has the same mesmerising effect on me as looking into a fire place. Opposite me sits one of the leading Danish and internationally renowned researchers in biodiversity, Professor Carsten Rahbek. I have planned a number of key questions about nature and the relationship between nature and humans in the future. In a moment he will tell me that humans are in “an arm race with microbes”, and that we might be on the losing side. We drink coffee.

THE ESSENTIAL QUESTION OF THE FUTURE

“We are doing a large-scale experiment with our own planet and that is global climate change. We know from the study of life on earth, that in the past 5 billion years, abrupt and significant climate change caused dramatic changes to the composition of life on earth. Right now, we are entering a phase of this kind, with mass extinctions of species and global destruction of ecosystems. So you could say that we are in a very exciting phase of human history, because the fundamental processes that shaped life on earth as we know it – with which we have become very abundant, very successful and very rich – are now changing. The underlying system is transforming, and it will be interesting to see whether we

will be able to adapt and benefit from the new world that is to come.

We have to remember that climate change is already upon us, and when we go out and look at empirical phenomena, things are changing dramatically already. In the history of Earth, climate change wiped out 30-50 percent of species in the past. What is interesting now for humans, is the question of whether we are so technologically advanced that we no longer depend so extensively on natural ecosystems to sustain and feed us? Can we adapt to the changes in the ecosystem that have provided us with the resources and surfaces that we build our life upon, or can we overcome changes to the functioning of the ecosystem with technology and development? That is a BIG question.”

ARMS RACE BETWEEN MICROBES AND HUMANS

“Research indicates that many of the occurrences of neglected and forgotten diseases could be directly linked to our heavy modification of ecosystems and climate change. We have always been a target for diseases, so the evolutionary arms race between microbes and humans has always been in progress. One of the reasons that humans have been so successful until now is that we have been ahead of the arms race with the microbes that cause human diseases. The question is now, due to our very rapid and destructive changing of the underlying system and our experiences with the increased prevalence of many neglected and forgotten diseases, will we continue to stay ahead in this arms race?”

Scientists from Harvard Medical School have stated that we are currently in a state of life, where microbes are renegotiating their deal with humans, and humans are on the losing side. So if you are looking for a doomsday perspective, then it is probably not going to be the redistribution of resources or alternation of ecosystems. What could really have a devastating impact is to be on the losing side against diseases, and in the past decade or so we have seen the increasing impact of micro organisms on humans.”

NATURE IS NOT STATIC

“We like to view nature as static, and we like to preserve nature as we know it. This is a challenge, when the biophysical factors impacting the world are changing. If you look at a lot of international conventions, e.g. habitat directives, the way that policy is put together is very much about preserving things as they are. The question is whether that is a wise strategy, when we know that in the future things are not going to be the same. It is very challenging for humans to think out of the box and try to make a strategy for a world that we don't know, so instead we try to focus on a strategy which aims at maintaining the world as we know it. This is a huge mental challenge for politicians and all decision makers.”

“Over the past 20 to 30 years, Denmark has been in a transition, where we culture-wise are losing our connection with nature. My parents' generation knew quite a few species out there, they knew some basic stuff.



“Roughly speaking, depending on how we calculate the value of the world around us, approximately half of the Gross National Product on earth consumed by humans is produced by nature for ‘free’ so nature and ecosystems are worth a lot,” says Carsten Rahbek.

My generation knows a little bit, the next generation knows ‘Pokémon’. That has an impact on the way we connect ourselves to the world around us. That is not how it is everywhere though, and if you go to Sweden they have not lost their contact and natural history knowledge to the same extent as we have. They still have their nature-cultural background, but here in Denmark the entire issue about climate change, nature, biodiversity and ecosystems services is linked and understood exclusively in terms of economic development. Broadly speaking, depending on how we calculate the value of the world around us, approximately half of the Gross National Product on earth is produced by nature for ‘free’, so nature and ecosystems are worth a lot. The question is whether we recognize it and act upon it.”

WE HAVE TO DEAL WITH THE UNKNOWN

“Sometimes we scientists are told that we are producing doomsday predictions, but we are just like everyone else. When we get the results, we look at them and think ‘Oh my God, that cannot be true,’ and we do a lot

of careful looking into the details to find out whether there is something wrong, because we want to be sure about the dramatic results.”

“As humans, we are brought up with the mental state of preserving and maintaining, but we probably need to change the way we think and we need to be able to think more in terms of how we can deal with the unknown – how we can actually do strategy planning for a future where biophysical conditions are perhaps drastically different? We like to produce short-term plans over a few years with specific targets, and we simply start from where we are now, basically assuming that the world is not changing. That is how we do our plans and policies. Right now politicians have a tremendous challenge. I think they are doing a very good job trying to encompass the fact that scientists are telling them that normal planning is not going to work, because the world is changing much more dramatically than we have yet realized. You have to start to produce policies that are reasonable for a world that is going to change dramatically in 50 to 100 years’ time – and we cannot tell you exactly what is going to happen.”

WE NEED HUMANITY AND ARTISTS

“Our relationship with nature in the long run depends on the level of information, the debates and the discussions we have about nature and sustainability as a society. Whether we will continue to focus on material wealth or whether we are going to have a broader perspective on life. I think we are the masters of our own fate. We have choices to make.

There are scientists pointing out problems, but that will not solve the problems. If you don’t have culture and arts – musicians, painters, writers etc. – to influence and enlighten people into thinking about our problems, you won’t have decisions that go in the right direction. I think that Denmark used to have a strong tradition of authors and thinkers focusing on nature and the relationship between humans and nature, but we kind of lost it in the past 15 years – so this is a challenge in Denmark as well as many other societies.”

Carsten Rahbek has also been a member of the Core Group of ‘In-100Years’. Contact Carsten Rahbek at crahbek@bio.ku.dk and Steen Svendsen at steen@houseoffutures.dk