



## **Cape Town and the Entangled Bank**

Speech of the President of the Max Planck Society

Professor Dr. Patrick Cramer

At the Opening of the Max Planck–University of Cape Town Centre for Behavior and Coevolution

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– Check against delivery –

Charles Darwin developed his ideas on evolution during a sailing trip. Actually, it was not just a trip, it was an adventurous circumnavigation. This journey on a ship named “Beagle” took him to Patagonia and the Galapagos Islands and all the way to New Zealand. And then – on his way back to England – Darwin stopped at Cape Town. This was on the 1<sup>st</sup> of June 1836. He visited the Cape Winelands – and I assume he also relaxed a little, as it was towards the end of a very hard, 5-year journey.

But the story does not end here. When Darwin arrived at Cape Town, he had started to organize his ideas on evolution. You can imagine that he was full of new ideas and that he needed to discuss them with other scientists. And indeed, he met colleagues at the Cape. Amongst them Sir John Herschel, actually an astronomer, who mapped the southern sky. But he was also someone who is thought to have had a strong impact on Darwin and the theory of evolution.

Dear consul-general of South Africa, dear colleagues of the University of Cape Town and the Max Planck Society, dear friends of the Max Planck Foundation, dear guests,

Darwin’s visit at Cape Town in 1836, this was an early exchange between scientists from Europe and South Africa. And today, almost 200 years later? Today we are here to open a new chapter on European-African collaboration. It is my pleasure to welcome you all here at Seewiesen, one of two sites of our Max Planck Institute for Biological Intelligence!

To be honest, I think Seewiesen is amongst our most beautiful sites. As you may know, the Max Planck Society is home to 84 institutes all over Germany and also abroad, in Rome, Florence and even Florida. All of them provide opportunities for excellent research that we carry out in all kinds of fields: from astronomy to artificial intelligence, from materials science to the history of art.



But really, Seewiesen is special. It is not just the history, it is also the present and the future: here we can study animals in a near-natural environment.

But coming back to Darwin: Towards the end of his book "On the origin of Species" there is a famous chapter that many of you know. In this chapter, he did foresee the concept of co-evolution. Darwin describes a small stretch of ground, nothing spectacular, just a bank, a ditch or an embankment close to his home in Kent. This bank was overgrown with plants – a "tangled bank".

And Darwin names the animals that can be found there: "birds singing on the bushes, with various insects flitting about, and with worms crawling through the damp earth". Today this does not sound very special at all. But what Darwin described is an ecosystem. An ecosystem in which the different animals depend on each other – and influence each other in a process of co-evolution.

It is also ecosystems – although quite different ones – that our new Center will study. The "Max Planck–University of Cape Town Centre for Behavior and Coevolution" will investigate the behavior of interacting species and the dynamics of the evolution of species that respond to one another. The center studies this across scales, from genomes to ecosystems.

This work is fascinating, but not just that. It is also important. And it is important to do this work now, now that ecosystems are endangered and biodiversity is declining rapidly.

Let me just give you one example of the research projects that will be conducted at the Center. The bronze-winged courser (I learned the German term is Amethystrennvogel, and actually I had not heard it before either), is an African bird specializing on breeding in recently burnt patches of savannah. These birds have to deal with unpredictability: no one knows when or where it will burn next.

The birds have managed to adapt to this ecosystem very well. But the world is changing: climate change will alter many ecosystems very soon. How are these birds adapting to their environment, both using genetic alterations and changes in behavior? What is the nature of these complex changes, of this "biological intelligence" – if I may say so? Any answers to these questions may provide insights into whether and how organisms can buffer the cost of a heating planet.

I think this answers why we are working with colleagues in Cape Town. But there is another reason why we are collaborating with institutions in South Africa. It is simple: we wish to work with the best. We wish to team up with those who inspire us. We wish to create synergies and advance science.

Did you know that South Africa ranks first within the entire continent when it comes to scientific publications? And that South Africa's current ten-year plan on "Science, Technology and Innovation"



prioritizes, amongst other things, climate change and environmental sustainability, which obviously includes biodiversity research?

And did you know that the University of Cape Town is not only the oldest university in South Africa, it is also the top-rated university in all of Africa. And, last but not least, The FitzPatrick Institute of African Ornithology has become the largest center for ornithological research in the southern hemisphere, full-stop. Dear colleagues, you are partners we really wish to work with.

Ladies and gentlemen,

Today is really special, also for another reason. It is really special because today we open the very first Max Planck Center in Africa. We already have partner groups there and collaborative projects, but there has never been a Max Planck Center in Africa. Such a center has the critical mass we need to excel. And to advance science in an interdisciplinary way.

But the first such Center in Africa also sends an important signal. A signal of a new beginning. We want to extend our collaboration with South African scientists and with colleagues in selected other countries in Africa. We see a great potential there in various fields.

By the way, our international strategy is as simple as this: when two scientists meet and identify something exciting, an outstanding opportunity that they could take on together, something that they could not do alone, then we support such outstanding opportunities with additional funds. This science-based approach is at the heart of our strategy. And I am certain it will work out because it focuses on people, not programs. On ideas, not road maps. On opportunities, not strategies.

Ladies and gentlemen,

This center – and today's opening event – are supported by private sponsors via the Max Planck Foundation. I want to mention in particular the estate of the Gross family that contributed more than half of our share. Thank you for making this possible! This is also special: This is the first Max Planck Center supported by the foundation. So many reasons to celebrate today!

At the end of my speech, let me get back to Darwin's metaphor of the "entangled bank". I want to take this metaphor and transfer it to a different context.

We scientists are all humans. And we need the right ecosystem to conduct our work. We need our peers, coworkers, and collaboration partners. We wish to work within a dynamic and stimulating network. We need to be able to cross borders and to change perspective.



Our new Center will help to provide such an ecosystem for the advancement of science. It will bring together expertise in biology, ecology, neurobiology, genetics and even anthropology. It will connect the extraordinary field research in Africa with the excellent technical expertise here. I am sure this Center – or should I say this “entangled bank”? – will lead to flourishing the “coevolution” of projects. It will also train the next generation of scientists: PhD students, postdocs and also independent group leaders who will be encouraged to follow their own ideas. And it will literally connect people across continents.

Let me finish by thanking Claire Spottiswoode and Bart Kempnaers for leading this exciting research effort. Thanks also to Gabriel Jamie, Tobias Bonhoeffer and Susan Miller for their contributions. Let me also thank Susie Cunningham, the Director of The Fritpatrick Institute. I wish all of you and your colleagues best of luck and also fun working together on and in an “entangled bank”.

Now I am looking forward to your presentations. All the best!