

HUMBOLDT KOSMOS

Research – Diplomacy – Internationality

Humboldt today

The secret of an eternal idol

DEUTSCHE
VERSION:
BITTE
WENDEN



TEMPTATION

Why American researchers are looking to come to Germany

HIGH-FLYERS

How researchers observe animal migration from space



Alexander von Humboldt
Stiftung/Foundation



www.humboldt-today.de

—————> The website for the Humboldt Year.
From January 2019.

The secret of
an eternal idol.

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BRIDGING THE GAP



In the picture you can see me at Tempelhof Field in Berlin preparing for a Soapbox Science event I was helping to organise. Soapbox Science takes science to a broader public and makes female scientists more visible: women present their research at the events, in public spaces where many people pass by; they give short talks using simple language that is easy for the general public to understand.

Soapbox Science was inspired by Speakers' Corner in Hyde Park, a London tradition, which is also where Soapbox Science originated. In Germany, too, the speakers stand on wooden boxes like the one I'm carrying in the picture. The Tempelhof Field event in 2017 was the first of its kind in Germany. I initiated it after coming to Germany from the UK as a postdoc.

For me, it's perfectly natural to get involved in something like this: I believe a certain basic understanding of science is absolutely essential for a healthy society. The gap between what people think scientists do and what they really do is often huge. To help bridge it, we scientists have to communicate more about how we work and what we are working on. This empowers people to be more critical in their own judgments. If you know something about science you are in a better position to question how serious someone is being when they claim to

know, for instance, how we can cure every form of cancer in the next ten years.

The gender aspect is very important to me. There is still a great need for information on the topic. I experienced this myself. I have always been interested in the role of women in science, but I had never really looked at the facts and figures and didn't realise the dimensions extent of the inequality until the Equality Act came into force in the UK in 2010. Since then, universities have been required to disclose what they are doing about gender equity as well as ethnic and religious equality. This initiative really opened my eyes – for example about the distribution of roles in lab teams, that it is not actually a given that the women in the team should automatically do the admin or even make the coffee, things I had always accepted in the past. That's what I like so much about Soapbox Science: women's role is exclusively to present their research. ● *Recorded by* **TERESA HAVLICEK**

The Portuguese-Brazilian biologist **CAROLINA DORAN** is a Humboldt Research Fellow at the Leibniz-Institute of Freshwater Ecology and Inland Fisheries in Berlin. Prior to that, she completed her doctorate at the University of Bristol, United Kingdom.

Photo: Humboldt Foundation / David Ausserhofer



Dear readers,

What if Humboldt were a researcher today, in 2019?

He was a marketing genius. A networker who never stopped writing letters. He loved succinct sentences and punchlines. He held lectures for a wide audience. He took a stand on slavery, colonialism and environmental destruction. Today, he would probably tweet – against climate change sceptics and fake news mongers. He would appear on talk shows and have his own YouTube channel.

Which area would this polymath choose to specialise in today, where would his adventures lead him?

Perhaps he would study the melting permafrost in Siberia. He would certainly be attending international conferences all over the place. Or he would be on the first manned-flight to Mars. That would probably suit him best.

By the end of his life, Humboldt had spent his family's fortune on travel and ruinous publications. Where would he get the money from to pursue his dreams today? Would he hold a chair in Berlin or have turned his back on Germany as he did then?

I imagine today's Humboldt would be working on neural networks and artificial intelligence. And he would be paid by Amazon or Google.

Too far-fetched? In this issue you can form your own image of the historical Alexander von Humboldt and what makes him relevant to this day.

GEORG SCHOLL

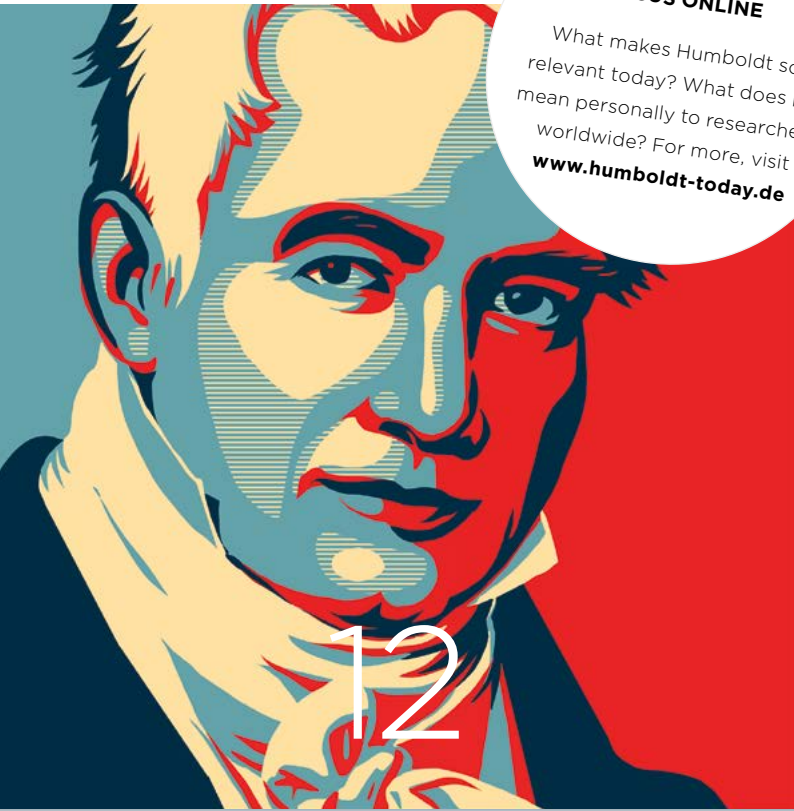
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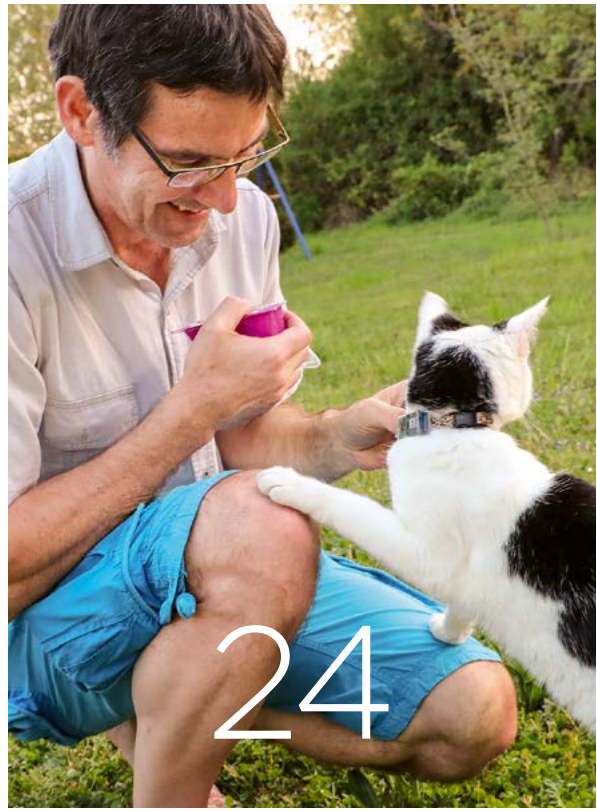
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COVER PHOTO Detail of a painting by Friedrich Georg Weitsch, 1806, montage: Raufeld Medien



FOCUS ONLINE
 What makes Humboldt so relevant today? What does he mean personally to researchers worldwide? For more, visit www.humboldt-today.de



Photos: Humboldt Foundation / David Spaeth, Miriam Bauer, Max Planck Institute for Ornithology / Christian Ziegler

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Everyone celebrates Humboldt, whether as an adventurer, polymath, networker, inventor of climate research or marketing genius – somehow they all fit. Is this the secret of his popularity?

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Photo: Humboldt Foundation / David Spaeth



WHO TELLS THE SWARM WHERE TO GO, MR JOLLES?

Animal swarms have fascinated us for a long time. How do they coordinate their behaviour, who leads, who follows? This is one of Jolle Jolles' research fields: he focuses on sticklebacks, a fish that is widespread in both freshwater and salt water across the northern hemisphere.

Initially, the Dutch biologist explored how brave or shy his lab fish were: he noted how far they strayed from the protection of underwater plants, how long they stayed out and how they responded to their respective companions. Jolles discovered that not only are some sticklebacks more courageous than others, but also more sociable. Whilst some like to stay close to their companions, others prefer to keep their distance. Groups in which the majority likes to live in close proximity are more cohesive, but those with a majority of unsociable members make faster progress.

Today, Jolles frequently regroups his sticklebacks to create ever new shoals. "When you create a new group, the individual fish sort themselves out according to their individual proclivities," he explains. "What appears to be complex swarm behaviour is simply a matter of personalities." The fish do not even need to know the characteristics of the other members of the shoal. Fish that are slower and like being near others tend to keep to the middle, while the less sociable, faster as well as bolder fish tend to be out in front. They are thus much more likely to take on the role of swarm leaders. ● *Text* JEANNETTE GODDAR

DR JOLLE JOLLES from the University of Cambridge, United Kingdom, is a Humboldt Research Fellow at the University of Konstanz and the Max Planck Institute of Ornithology in Radolfzell.



MS OMARINI, WHAT DO YOU DO WITH DISCARDED CITRUS FRUIT?

Some people put orange peel in their dishwasher because it saves on rinse aid. Others put lemon peel in their wardrobes to fend off moths. There are lots of uses for citrus fruit waste in the home. But Alejandra Omarini thinks on different scales: she wants to make such waste industrially viable.

Every year, over 100 million tonnes of citrus fruit are produced worldwide. About half ends up as waste, like the peel and residues from juice production. “At home in Argentina, where a lot of citrus fruit grows, only a very small proportion of the waste is mixed with animal feed or used to produce energy,” says Omarini. “But even that is a real pity.” Citrus fruit waste contains useful substances, especially terpenes and polyphenols. Secondary plant substances like this are responsible for taste, aroma and colour, they ward off pests, attract beneficials and protect against ultraviolet radiation. The food industry, pharma-

ceuticals and agriculture are thus all very keen to utilise these substances – as soon as they can be extracted cheaply from plant waste.

This is what Omarini is trying to do; she experiments on fungi and their enzymes that play an important role in the decomposition of biomass. In her model project, she is growing edible oyster mushrooms on citrus fruit residues. As a result of fermentation after adding a special bacterial haemoglobin a new compound is formed. And this is good for biological pest control. Omarini’s research is still in its infancy. “But if my work bears fruit, we really will be able to make sustainable use of the leftovers.” ●

Text JAN BERNDORFF

DR ALEJANDRA BEATRIZ OMARINI from Argentina is a Georg Forster Research Fellow at Jacobs University Bremen and Leibniz University Hannover.



Photo: Humboldt Foundation / David Spaeth

WHEN DID CONSUMERS DISCOVER THEIR POWER, MR TRENTMANN?

Ever more people are making conscious purchasing decisions in order to drive changes in society, such as buying organic goods from exemplary retailers. A new consumer awareness? “Not at all,” says historian Frank Trentmann. “Consumers were already wielding their power in a very similar way over a hundred years ago.”

Trentmann spent years researching for his book on the history of consumption “Empire of Things”. It was at the end of the 19th century that things got political, it reveals. Citizens started to identify themselves as consumers; discovered that they can influence the market and bear responsibility for the common good. “In the cities of Europe and America, citizens got together in consumers’ leagues and co-ops, and launched campaigns,” says Trentmann. “Their motto was: living is buying, buying is power, power is responsibility.” They drew up blacklists, for example, of companies that exploited their workforce. In the 1970s,

however, it became widely accepted that the market and competition guaranteed consumer interests best – not organised consumer councils. But up to then, consumers had largely focused on domestic producers; it was only later that the conditions in distant countries sparked people’s interest. Although today’s consumers are rediscovering their power, “it’s limited,” says Trentmann. “Politics and business are powerful, too. Only if they do their bit, if the topic of consumption is given greater weight in education, and financial incentives and new structures for a different way of life are created, will we succeed in making the transition to a sustainable consumer society.” ● *Text* **JAN BERNDORFF**

PROFESSOR DR FRANK TRENTMANN from the University of London, United Kingdom, is a Humboldt Research Award Winner at the University of Konstanz.

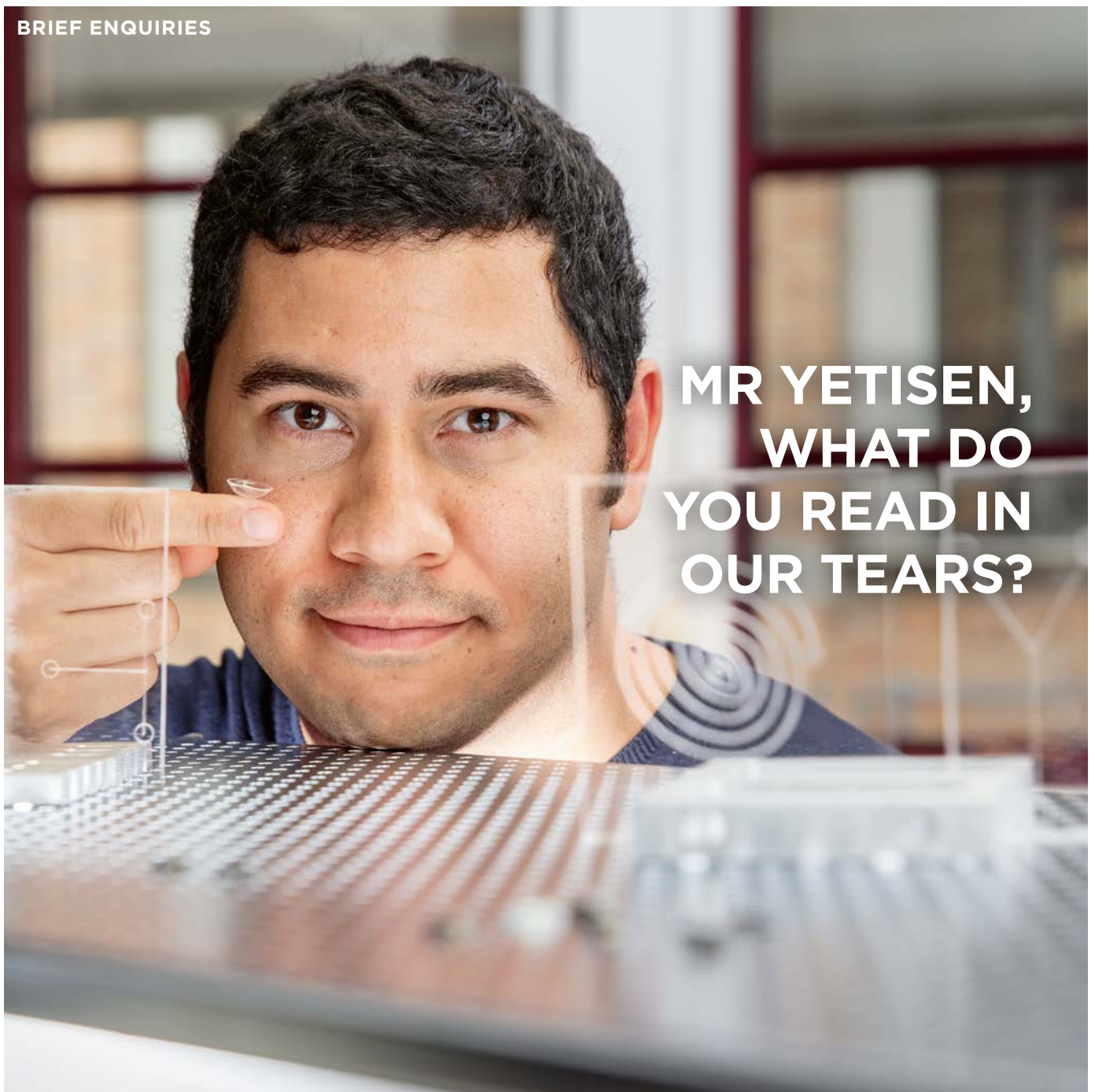


Photo: Humboldt Foundation/David Spaeth


Many diabetics have to test their blood sugar levels several times a day by pricking their finger to take blood. How much more pleasant would it be if they could take a photo of their eyes instead? Chemical engineer Ali Yetisen demonstrates that contact lenses can act as sensors in the eye.

The method makes use of the fact that tear fluid, just like blood, contains a raft of biomarkers, that is, substances like glucose or electrolytes, the concentrations of which give an indication of our state of health. “In addition to diabetes, they also indicate glaucoma, for example, and other eye disorders. Weaknesses in the kidneys and liver can also be detected at an early stage,” says Yetisen. But how do you access the tears? Yetisen’s solution involves special, laser-treated contact lenses: tear fluid is collected via minute channels in tiny cavities. “They are at the lower edge of the lens outside the field of vision,” the researcher explains. In these

tiny structures, the fluid is subjected to a series of tests during which certain substances change colour according to the concentration of the various biomarkers. It works similarly to the test strips you use to check on water quality. The intensity of the colour indicates the biomarker content. The entire measurement is taken without resorting to electronics. Only the colour analysis is done by a smartphone app after the patient has taken a photo of the lens in his or her eye.

Yetisen has already proved that the method works. It will take several more years, however, until you can buy contact lenses like these. “Before they can be licensed they will have to undergo many more safety tests and clinical studies.” ● *Text* **JAN BERNDORFF**

DR ALI K. YETISEN from Harvard University, USA, is a Humboldt Research Fellow at the Technical University of Munich.



HOW CAN THE IMPACT OF ADHD BE MINIMISED, MS ROY?

Although many children with behavioural disorders grow up to lead a normal life, others never find their place in society. Arunima Roy's dream is to stop this from happening.

Early on in her career, the medical doctor came across a study in which researchers had ascertained that the degree to which children with attention deficit hyperactivity disorder (ADHD) were resistant to other problems partly depended on how they had grown up. "Whether they grow up in a functioning family, what the mental health status of their parents or their own socio-economic status is – these things all influence what becomes of them," says Roy. Today, she is searching for epigenetic changes that could lie behind this resilience – also to other psychiatric disorders. These processes are thought to be factors in the emergence of psychiatric illnesses. A core idea of epigenetics is that little chemical compounds, known as methyl groups, attach to DNA

building blocks and turn off certain genes, thus affecting their impact. Roy is evaluating blood samples collected during a longitudinal study conducted in Estonia. From 1998 to 2016, some 1,000 people underwent comprehensive psychological assessment and were tested on their cognitive abilities at four points in time from the age of nine or fifteen. She hopes to discover a correlation between psychological disorders and changes in DNA methylation from which to derive an epigenetic biomarker. This would mean children could be tested at an early age to determine how susceptible they would be to later problems. "Ideally, targeted psychiatric help could be offered really early," explains Roy. ●

Text JEANNETTE GODDAR

DR ARUNIMA ROY from India is a Humboldt Research Fellow at Julius-Maximilians-Universität Würzburg.

THE HUMBOLDT CODE

He was an obsessive networker, a daredevil and a marketing genius. The reports on his travels and adventures earned him star status. Today, on the 250th anniversary of his birth, the Prussian scholar is still revered. On the secret of an eternal idol.

Text RÜDIGER SCHAPER

ALEXANDER
VON HUMBOLDT

IF HUMBOLDT WERE ON
TWITTER TODAY

For more Humboldt quotations
on images from today, visit
[www.humboldt-today.de/
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“

Ideas can only be
of use if they start
living in many
minds.”

From Humboldt to Ludwig Bullmann,
Cumaná (Venezuela), 13 October 1799

The great minds of his time, whether Kant, Goethe or later Karl Marx, largely explore the world from the comfort of their own writing desks. But Alexander von Humboldt not only tries to explain the world, but ventures where no one has gone before. He experiments on his own body and puts his life at risk, as though there were more to be had where that came from. As a young mines inspector in Franconia, he almost suffocates in a mineshaft, aged 24. He is already delirious when he is found and brought to the surface. Just a few years later, during a trip down the Orinoco River, the boat carrying the Prussian Columbus threatens to capsize. Humboldt can't swim, and the water is infested with crocodiles. He has another narrow escape, just as he does when a wall of snow breaks loose right beside him and plummets into the depths as he is climbing up a volcano in the Andes. On the crossing from Havana to Cartagena in today's Colombia, his vessel just manages to avoid a shipping accident. In the jungle he has an encounter with a jaguar but gets off lightly. Humboldt knows exactly how to cleverly incorporate these episodes both into conversations and his writings.

LIKE AN EXTREME ATHLETE

The long life of this researcher and writer is full of close calls and endeavours that defy reason. Aged 57, Alexander von Humboldt climbs, extreme-athlete-style, into a div-

ing bell and has himself winched to the bottom of the Thames. This is the time when London is building the first tunnel under the river. It is pitch dark and freezing cold down amongst the sewage. The bell descends eleven metres, and its occupants are fed oxygen through a leather hose. Humboldt's head pounds, the pressure changes make him bleed from the nose and he remembers his madcap tours in Latin America.

Humboldt combined natural science and the humanities in an exemplary fashion and that is something that exerts great appeal again today, inspiring both artists and scientists. As he writes in the first volume of "Cosmos", Humboldt wanted to comprehend "the phenomena of physical objects" in their general connection. In the end, "everything is interconnected." And so much of what occurs in his working life – apparently so meticulously organised – is really just coincidence. Before setting off >

IMG left *Early adopter: Alexander von Humboldt on the Orinoco River in Venezuela. Portrait by Friedrich Georg Weitsch, 1806*

IMG above *Philadelphia, United States: cyclist in city traffic, December 2016*

for America, he has other plans. He wants to go to Egypt, then on to Asia, but this all falls apart, luckily, as it turns out, because in 1799, the Spanish crown unexpectedly issues him and his colleague Aimé Bonpland passports to visit the New World. The Spanish hope this supremely self-confident, but also diplomatically-versed, mining expert will contribute new expertise to their badly-organised silver mines in the colonies. Humboldt had speculated on this happening, but he couldn't bank on it.

THE SELF-PROMOTION GENIUS

This free, radical element is typical of Humboldt's entire existence. When it comes to grasping opportunities and setting forth, he has an uncanny feeling for the right moment. And after but a few months of travelling around Latin America, he gives us a taste of his genius for self-promotion: In a letter to an American businessman of German descent he describes his travel experiences and asks him to post a notice "in one or two of the most widely-read American newspapers (the ones that go to England)." Unashamedly brazen, he delivers the copy himself, in detail and in the third person, ready for publication: "that after having conducted the physical and mineralogical observations on the summit of Pico de Tenerife, Humboldt arrived with his collection of physical and astronomical instruments in very good health and happy at Cumaná

Harbour at the beginning of July, from where he has already commenced his work in the mountains of Paria and Nueva Andalucia under the protection of his Catholic Majesty. From here he will proceed to Mexico."

So spoke the networker and the daredevil. They are professionally chosen words, designed to spark curiosity, proclaim his deeds and keep his audience, especially in Europe, informed and amazed. The plan works – the journals play along. Humboldt's self-promotion is thorough and systematic. He knows who could be of use to him, where and under what circumstances – irrespective of whether they are a king or a merchant, an academic colleague or a university friend with connections. The world should be told how he manages to broaden its horizons. He has this self-publicity thing down to a T: how you present the image the world makes of you – it is the creation of a global brand.

In the letter cited here we notice how hurriedly it was composed. Humboldt writes letters – lots of letters, 50,000 reportedly over the course of his life – the way e-mails and tweets are produced today. His five-year journey around South, Central and North America, at the end of which he meets US President Thomas Jefferson and revels in the compliments heaped upon him, is followed by fifty years of uninterrupted publishing activity. Alexander von Humboldt goes about writing and publishing his books with



“

It is not enough to complain; one has to work at remedying the complaints.”

From Humboldt to Wilhelm Gabriel Wegener, Berlin, 3 June 1788



“

Gold digging is a European disease, which borders on mania.”

Travel Journal, visit to Honda (Colombia),
18–22 June 1801

the same dynamism, daredevil mentality and obsession he has previously devoted to mountains, rivers, oceans and scorching hot regions, not to forget their people and cultures.

SOMETHING COLD, SOMETHING ARMOUR-PLATED ABOUT HIM

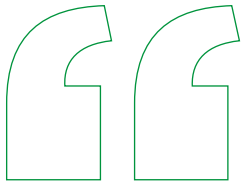
“With contemplation and energy, you can survive anything,” notes the traveller whose health never suffers, even under extreme conditions, but seems to thrive under the constant exertion that knocks other Europeans off their feet. There is something cold about him, something armour-plated, and he easily irritates his contemporaries and hurts their feelings. Humboldt combines emotion and analysis without mixing them up. He cultivates calculating admiration and admiring calculation.

The American travel narratives are a huge undertaking, a publishing nightmare, economic madness, a labour of Sisyphus. Depending on how you count them, there are a total of 35 volumes: a library of the New World with maps

and numerous illustrations. This is all coordinated by one single person who employs a small army of specialists – printers, illustrators, translators, publishers, scientific staff and co-authors. The volumes are usually published in French, sometimes in German translation, whereby the German version is not always the work of Humboldt himself. Some of the books appear in English even before 1815. There are translations into Dutch, the language of another colonial power and, later, into Spanish. His book on Cuba is banned on the Caribbean island because of its political content. Humboldt – an engaged abolitionist – writes about geography and sociology, flora and fauna, climate and >

IMG left *On Idjwi Island, part of the Democratic Republic of Congo, a member of the NGO Doctors Without Borders examines a child with cholera.*

IMG above *Anti-fracking protest against planned test drilling by the British energy company Cuadrilla in Balcombe, UK, 2013.*



The Indios share the same fate as the Africans: If they are not actually being massacred, they are thought to be thriving.”

Travel Journal, Lima (Peru),
23 October – 24 December 1802



art. It is the largest encyclopaedia ever produced privately. It impoverishes the author and drags others into financial ruin along with him. Some of the volumes are so expensive that Humboldt himself can't afford them. When he returns to Berlin in 1827, he is not only famous but effectively bankrupt.

DATA CONJOINED WITH POETRY

The “Cosmos” volumes that are published by Cotta from 1845 onwards are not part of the actual travel narratives even though they do correspond with them. They are a universe of their own and become best-sellers. By 1858, four volumes have appeared. They are devoted to the structure of the Earth and celestial phenomena, the history of culture and science, as well as – and this is one of the things that makes Humboldt stand apart from others – “enjoyment of nature” and aesthetic empiricism. From the “cycle of objects” he moves on into the realm of emotions and so, for him, it becomes a case of sensual science, data conjoined with poetry, especially in the second volume. Humboldt is unable to finish the fifth volume of “Cosmos”: he dies in 1859, just short of his 90th birthday. The project could never have been finished anyway – that is in the nature of the beast – something he is constantly aware of whilst carrying out this overwhelming task.

Research has a goal, but never an end. Humboldt himself ensured that this was the case by ceaselessly encouraging and supporting young researchers. “Cosmos” appears at a time that experiences an explosion of knowledge and a radical change in scientific practice. Even if his name is the only name on the cover, he did not write the whole of “Cosmos” himself. Humboldt is a collector of people and contacts. The State Library in Berlin holds his address book in which he more or less alphabetically noted his contacts with their names, professions, private or hotel addresses and other information: a total of 900 names and addresses – cramped script and barely legible, like most of his manuscripts. He uses every square centimetre of paper. Cross-references, circular motions – this is what work on the “Cosmos” volumes looked like. Humboldt sends manuscripts to friends and colleagues asking for their feedback. He involves hundreds of scientists in collating information from the most diverse areas: the Wikipedia of the 19th century. He builds up his network so that many young researchers in his orbit are able to benefit from. He doesn't only circulate data and commentaries around the world, but also information on jobs and positions. Humboldt's networkers often communicate with one another about things without referring to “Cosmos”. There are specialist advisors for each main area. Humboldt and



“

The climate of the continents [is dependent on the changes] which humans call forth on the surface of the land masses by felling the forests, by alterations in the distribution of surface waters and by the production of huge masses of steam and gas in the centres of industry.”

“Central Asia. Investigations of the Mountain Ranges and Comparative Climatology”, 1844

his cosmonauts don't want to miss out on the newest developments. From them, he collects, updates and optimises state-of-the-art knowledge. An endless undertaking: some of it is soon outdated or already obsolete.

MANY HUMBOLDTS, MANY PROJECTION SURFACES

Alexander von Humboldt didn't bequeath any earth-shaking theories like Charles Darwin, who revered him. Rather, he provides intellectual tools, open-minded ways of thinking, holistic points of view, all of which have turned out to be amazingly useful in the early 21st century's surge in globalisation: let's call it the Humboldt Code. Major celebrations are planned for the 250th anniversary of his birth in September 2019; his name is in everyone's mouth, and politicians have frequently taken to quoting him. The tone generally adopted verges on veneration, despite the fact that there is not just one Humboldt, but many Humboldts and many projection surfaces. We see the German researcher and thinker who finds inner peace in the jungles of Spanish colonies, the Berlin-born author who writes many of his books in French. We follow the European who spends a third of his life in Paris and, well into old age, says that he considers himself – in his own words – to be half an American. And sometimes we look in awe at the man who reveals so little of his private life and whose legacy is far from having been studied exhaustively. We still have some discoveries to expect, or even surprises. ●



RÜDIGER SCHAPER is head of the cultural affairs section at the Berlin daily *Der Tagesspiegel*. His biography, „Alexander von Humboldt – Der Preuße und die neuen Welten“ (Alexander von Humboldt – The Prussian and the New Worlds), was published by Siedler Verlag in 2018.

IMG left *São Paulo, Brazil: Indigenous people protest against threats to ancestral land rights in 2015.*

IMG above *Brayton Point Power Station in the U.S, state of Massachusetts. The facility was shut down in 2017.*

For me, **Humboldt** today means ...



Anja Karliczek

German Federal Minister of Education and Research

"... that scientific curiosity can be truly boundless. This is true in terms of subject matter but also with respect to the seriousness with which he documented his results for others — take a look at his magnum opus, "Cosmos" — as well as his missionary fervour — just think of Alexander von Humboldt's countless letters and contacts. I would also like to call to mind a political quotation ascribed to Humboldt which, I believe, is very relevant to the present day. It states: 'the most dangerous worldviews are the worldviews of those who have never viewed the world'."



Hans-Christian Pape

President of the Alexander von Humboldt Foundation

"... identifying science's top talents, promoting their scientific excellence in every country on Earth and, if necessary, helping to secure their academic freedom. But for me, Alexander von Humboldt also means connecting individuals with one another, across disciplinary borders and across national borders, because science, by definition, is international."



Ranga Yogeshwar

Science journalist, Physicist and Anchor

"... what a huge impact he had on the way we look at nature today. When we talk about ecology nowadays – he was the founder. And the number of different disciplines that roused

Alexander von Humboldt's curiosity is quite phenomenal – not just physics, botany and biology but also demography and politics. He had one of the biggest networks of any scientist at the time. Just imagine, he knew nearly everyone who was anyone. And what really sets him apart is that he didn't keep his knowledge within the ivory tower of academia, but sought to share it and start a wider dialogue."



Carolina Doran

Portuguese-Brazilian biologist and Humboldt Research Fellow

"... progress. He described nature as a web of life, connecting animals, plants, climate and geography instead of studying each of the subjects independently. In fact, this is what inspires me too. He was committed to showing this knowledge beyond the scientific community which is ever more important. We should all follow our passions and be creative and artistic, create knowledge and most of all: always find ways of sharing it with everyone."

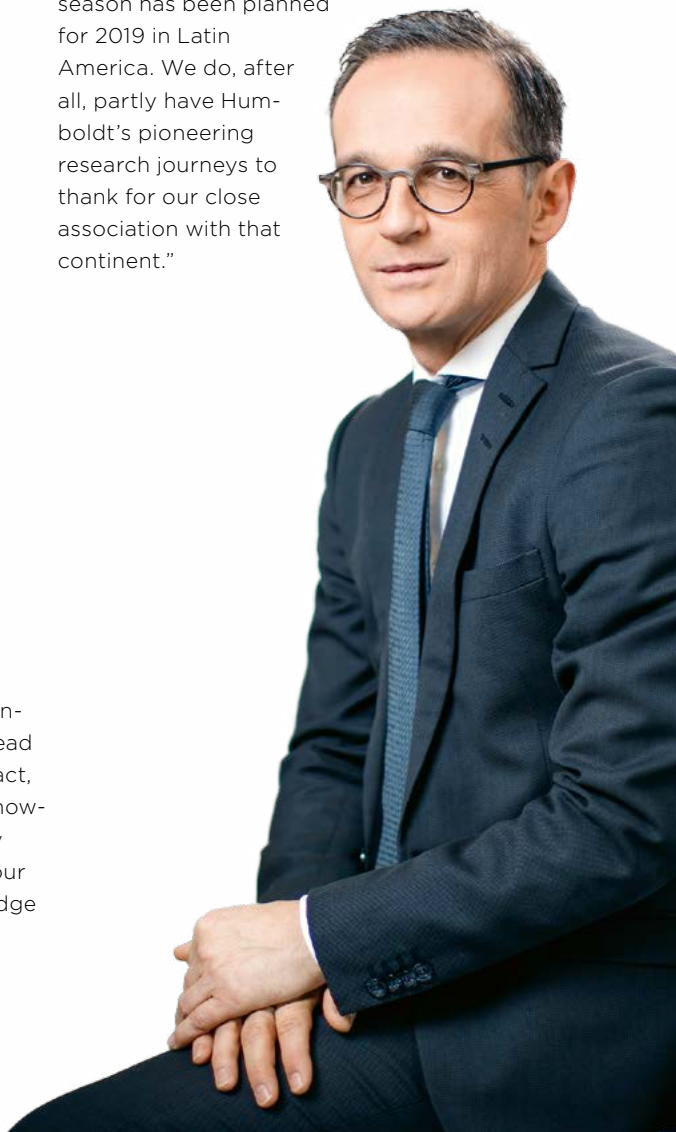
ONLINE VIDEOS

For videos of this and further statements, visit www.humboldt-today.de/statements

Heiko Maas

German Federal Foreign Minister

"... standing up for liberal values and convictions especially in science. Alexander von Humboldt consciously campaigned for academic exchange and dialogue, and against political oppression. Inspired by this, the German Federal Foreign Office supports collaborations between academics worldwide. In honour of the 250th anniversary of Humboldt's birth, a theme season has been planned for 2019 in Latin America. We do, after all, partly have Humboldt's pioneering research journeys to thank for our close association with that continent."



EVERYBODY'S STAR

Whether as a discoverer, Romantic, Atlanticist, climate prophet or working class hero: there isn't just one Humboldt, but lots of them. Historian of science, Nicolaas A. Rupke, has investigated how the various images of Humboldt have come about.

Interview **GEORG SCHOLL** *Illustrations* **MIRIAM BAUER**

Mr Rupke, almost 250 years after his birth, everyone is again talking about Alexander von Humboldt. What makes him so popular?

I think it's because he makes such a great projection surface. We try to see the person we would like to be in Humboldt. The picture we paint says just as much about us as it does about him. That's why there isn't just one Humboldt, but lots of them.

And who are they?

That depends where in the world you are when you ask the question. In Germany, for instance, I think his major opus "Cosmos" and his holistic view of the world were and are important. The British tended to see him rather as a sort of Empire boy who set off to stake out territorial claims for Germany. In the UK today, people are more interested in him because of his connection with Darwin. Science historians there are currently arguing about the importance of Humboldt's influence on Darwin and his theory of evolution.

Allegedly, when they met, Darwin couldn't get a word in edgeways because Humboldt talked so much...

Well, there are plenty of anecdotes like that that serve to support certain projections. One of them is the supposed friendship between Humboldt and Goethe, for example.

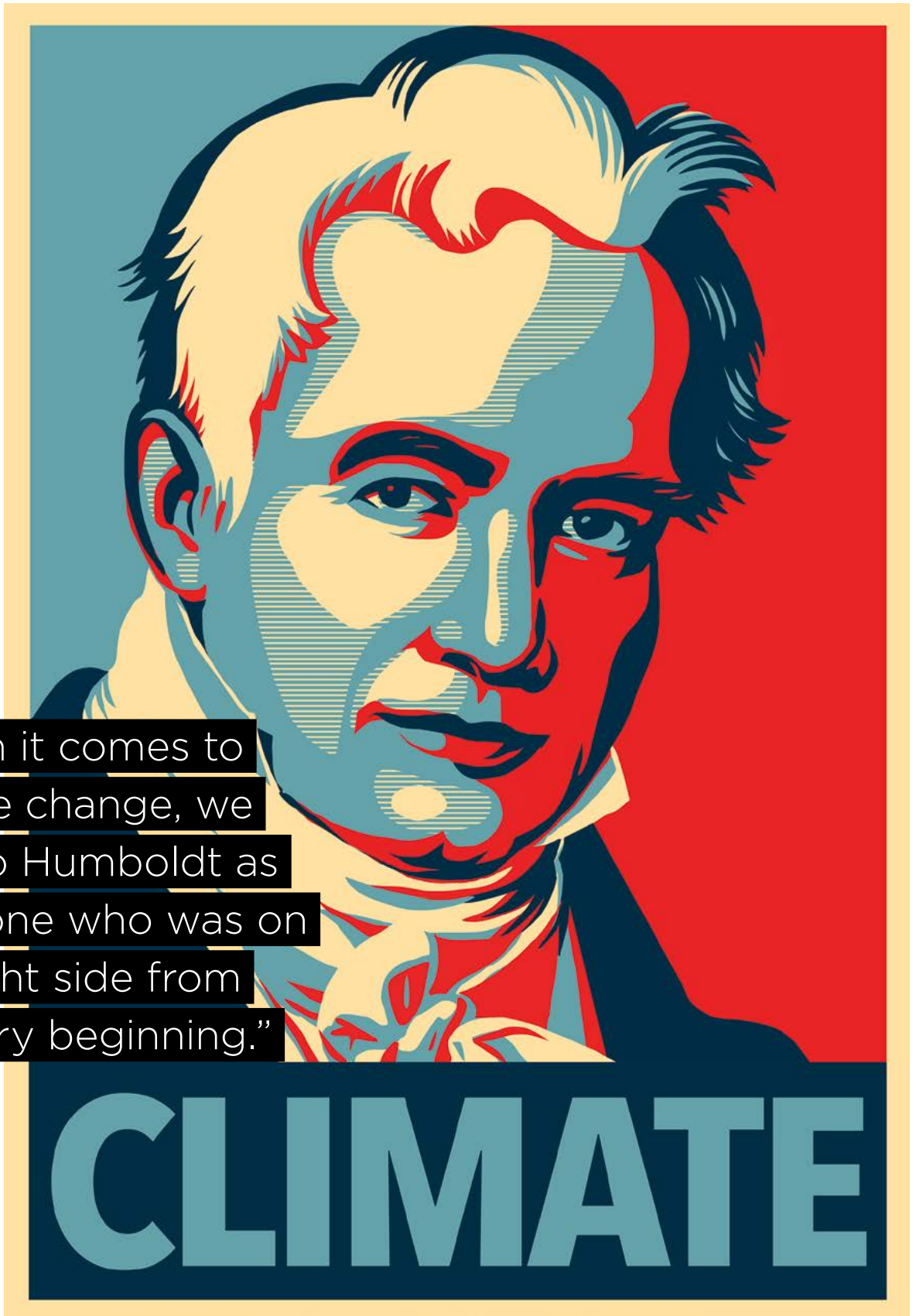
That is a retrospectively constructed legend for Germany's tradition of linking art and science. As far as Darwin is concerned, I personally don't believe that the influence was very great. I think Darwin, like many British thinkers of the time, wouldn't have had much time for Humboldt's German Romantic approach.

How has Humboldt's image in Germany changed over the years?

He saw himself as a liberal and a revolutionary. He was against the monarchy and the church. During the Empire period, he and his brother Wilhelm were symbols of a new Germany of culture, instead of a Germany of war. Under the Nazis there was another Humboldt. They viewed him as a genius of Germanic blood, who, with his "Cosmos" fitted well with their own global claims to power. After the war, the West Germans then said, no way, Humboldt was an Atlanticist and friend of America! In East Germany, on the other hand, he was reclaimed as a socialist thanks to his commitment to the miners and as an anti-imperialist who had liberated the people of Latin America from colonial oppression.

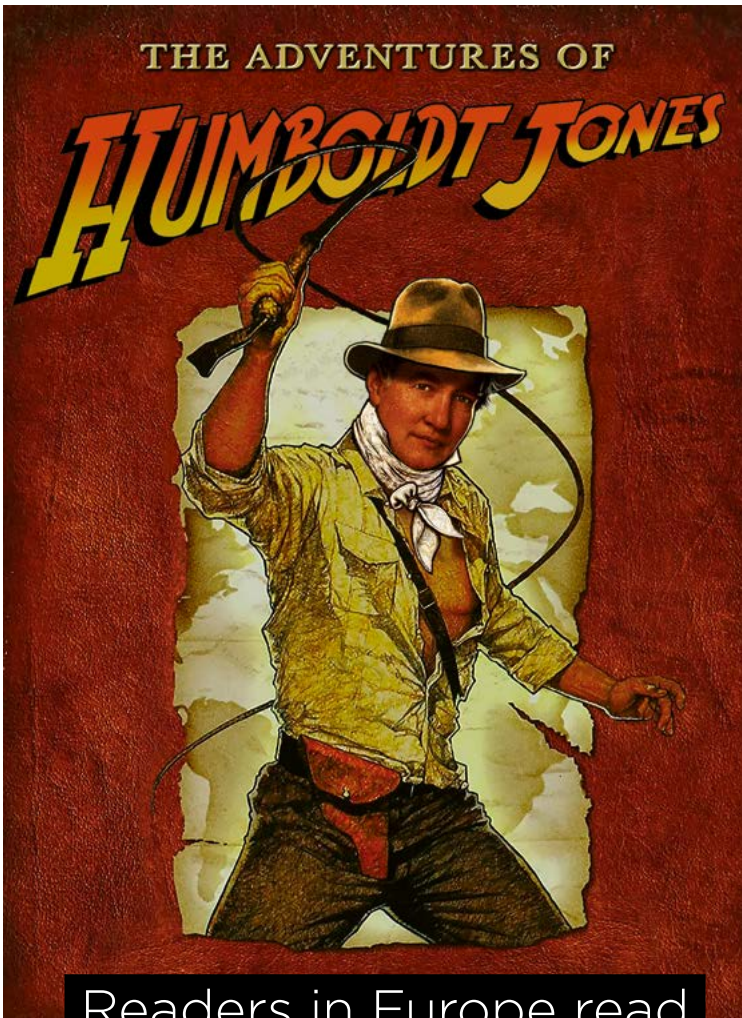
And after the Berlin Wall came down?

When Germany was re-united, Humboldt was given yet another identity. Now he was the networker and supporter of contemporary issues, from environmental protection >



“When it comes to climate change, we look to Humboldt as someone who was on the right side from the very beginning.”

CLIMATE



Readers in Europe read about his adventures in the wilderness in their newspapers. Humboldt in Indiana Jones mode: “He has always been popular because he makes such a great projection surface.”

to gay rights. In the western world today, homosexuality is so widely accepted that there is no longer a need for such historical role models. Now people tend to say: oh, he was gay, was he? So what?

You have written a metabiography, considering Humboldt’s life history from the angle of previous biographies. This has involved you studying many works on Humboldt. How did the authors manage to keep portraying new images of him?

They found various ways of doing it. Nationalists have often played down the role of Humboldt’s travels and the parts of his works written in French. Some of them even ignore the French Humboldt altogether. Humboldt’s brief visit to Philadelphia and Washington on his way back to Europe was also overlooked for a long time. It was only during the post-war period when relations between West Germany and the United States became close that this part of his journey was highlighted. People always cherry-picked whatever fitted the bill.

In the South American countries he visited, Humboldt is still popular. Is it the East German image of the liberator that survives?

Nowadays, to my knowledge, there are certainly critical voices there that take a more differentiated view. But he is still largely an integral part of national history and of national pride. He didn’t come as a conqueror or colonialist but as an explorer. He travelled in order to learn about the inhabitants and learn from them. They experienced him as a visitor who marvelled at their nature and culture instead of trying to conquer them.

Today, the image portrays Humboldt as the pioneer of internationally-connected science that thinks in multidimensional terms. We don’t see him as the Prussian scholar, but as a modern scientist. Is this image correct?

I think so. He didn’t only live, travel and correspond internationally, he also thought globally. That was one of his great achievements as a scientist. He looked for global cor-



“In East Germany, he was the socialist and anti-imperialist who had liberated the people of Latin America from colonial oppression.”

relations for his observations, be they temperature, geomagnetism or other environmental parameters. So, he really laid the foundation stone of modern climate science. Today, he is admired worldwide for having drawn attention to the consequences of human interference in nature at such an early stage. In today’s conversation about climate change we look to Humboldt as someone who was on the right side from the very beginning.

Finally: what is your personal image of Humboldt?

Being a Humboldt metabiographer, I of course have a very multifaceted concept of him. But I do think that he is quite rightly revered for his holistic approach and his environmental and climate observations. However, one part of my image is definitely also the way he promoted young talents. That Humboldt is certainly one we should seek to emulate. ●



PROFESSOR DR NICOLAAS A. RUPKE

is Johnson Professor of History at Washington and Lee University, Lexington, USA. A historian of science and an expert on Humboldt (“Alexander von Humboldt: A Metabiography”), he is currently doing research on the non-Darwinian tradition in evolutionary biology. In the 1980s, he was a Humboldt Research Fellow at the University of Tübingen. Rupke is a member of the German National Academy of Sciences Leopoldina and the Göttingen Academy of Sciences and Humanities.

THE HIGH-FLYER



The biologist, Martin Wikelski, studies animal migration – from space. In his project ICARUS, he collects the data from animals fitted with GPS transmitters. The aim is to create a network of highly intelligent measuring stations and warning devices right around the globe.

Text **JAN BERNDORFF**

A sunny 1 August in southern Germany. On the roof terrace of the ornithological station in Radolfzell it's boiling hot. The cube-shaped building, part of the Max Planck Institute for Ornithology in Seewiesen, is not far from Radolfzell. The view over the countryside from the roof is amazing – behind the treetops you can positively visualise Lake Constance. Institute staff are taking a break, sitting under an awning and sweating. Ditto the reporter at the next table.

Martin Wikelski, one of the two directors of the institute, is not sweating in the least as he emerges through the

door to the terrace, although he would have every reason to do so. Not only because he has just climbed the stairs carrying heavy equipment, but also because his research has now entered the “hot phase”. In two weeks' time, on 15 August, it will be decided whether the lighthouse project of his department Migration and Immuno-Ecology, the biologist's life work, ICARUS, will really take off.

The acronym stands for International Cooperation for Animal Research Using Space. Together with the German Aerospace Center and the Russian Space Corporation, Roscosmos, Wikelski's team is planning to track animal

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ANIMALS CAN BE OUR EYES, EARS AND NOSES IN PLACES WE HAVE LITTLE CHANCE OF GETTING TO OURSELVES.”

migration from space, or rather, from the International Space Station, ISS. Normally, migrating birds have numbered rings attached to their feet, for example, so that they can be identified elsewhere at a later date and their migratory paths traced back. Nowadays, researchers prefer to attach wireless tracking devices to the birds to trace their paths more accurately. It can now even be done by satellite. So far, however, conventional satellites have only delivered fairly rough information.

METICULOUS TRACKING

ICARUS is supposed to catapult this so-called animal telemetry, and thus ecology in general, into a whole new dimension. “Our antenna on the ISS will be able to control far more transmitters concurrently, and much more accurately than has been possible so far,” says Wikelski. “And we won’t just collect location data but also data on acceleration, temperature, air pressure, heart rate and anything else we want to measure.” This is all enabled by the miniaturisation of sensor technology. The birds’ trip recorders, known as tags, are currently not much bigger than a thimble and only weigh a few grams. Soon, it will even be possible to tag insects.

Each of the tags has a tiny hard disc which records data for an entire lifetime. “We can track the birds’ whole life history in minute detail with GPS accuracy: when and where they sleep, feed, fight and why they die,” Wikelski explains. His aim over time is to see thousands of animals tagged all over the world. Blackbirds in Europe, for example, in order to discover why some head for wintering grounds and others don’t; domestic cats to check to what extent they really endanger the songbird population; whales and sea turtles to find out how they can be better protected. And the animals are

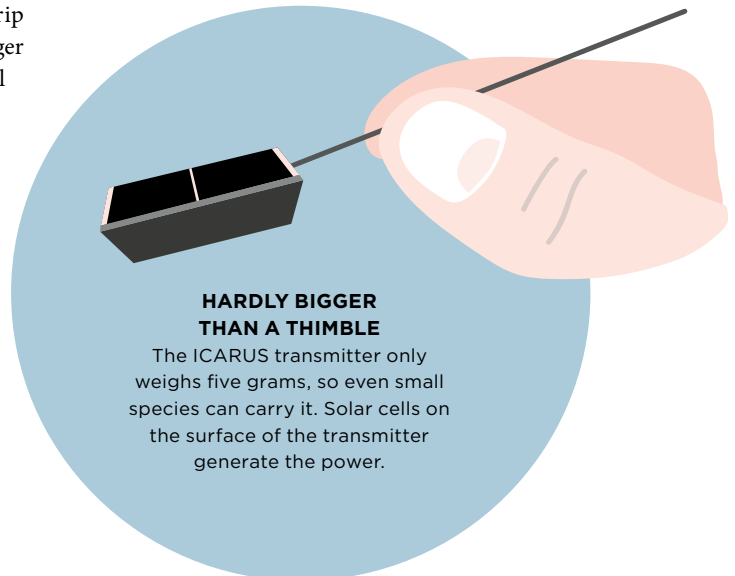
supposed to do us humans a service, too. “They can be our eyes, ears and noses in places we have little chance of getting to ourselves,” says Wikelski. “They can keep us updated on the state of our planet.”

Animals react to pollutants, they quickly reveal an outbreak of avian flu and can register the approach of a devastating swarm of locusts. Indeed, they may even be able to alert us to volcanic eruptions and earthquakes hours before measuring instruments register anything. This is one of the themes Wikelski’s team is currently investigating by tagging, amongst others, sheep and goats on Mount Etna: to date, the animals have always sought shelter roughly five hours before a major eruption – all around the volcano, which means other causes can be excluded. “What exactly they sense, we still don’t know,” says Wikelski. “They have a kind of sixth sense. But their movement patterns clearly indicate their escape behaviour.”

SEVENTEEN YEARS IN THE MAKING

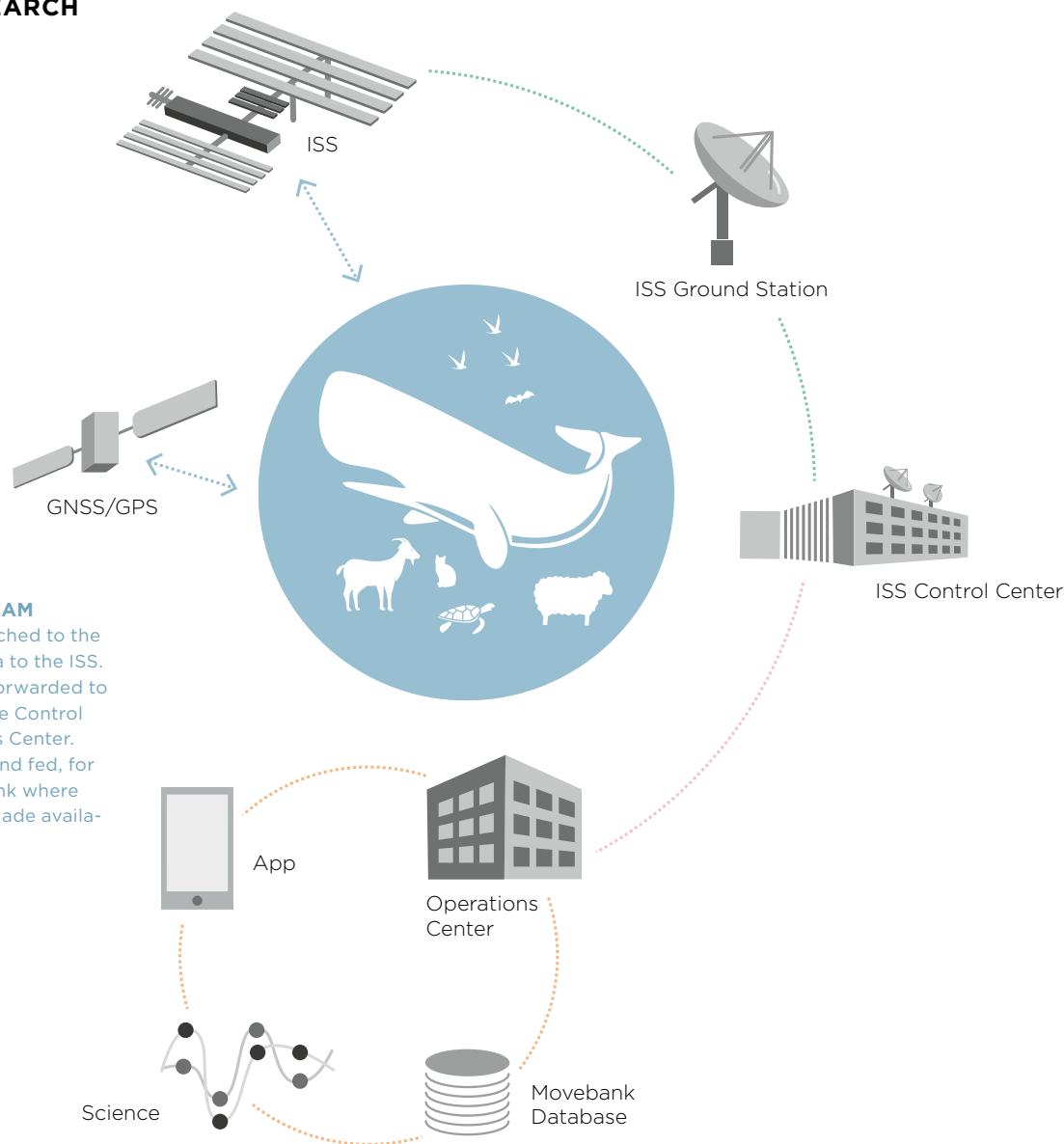
In other words: tagged animals can provide us humans with a network of highly-intelligent, world-spanning monitoring points and warning devices, and reveal completely new ecological interrelations. “Two hundred and fifty years after the birth of Alexander von Humboldt we can finally realise his vision of a world organism, a holistic understanding of our planet based on its individual parts,” says Wikelski.

All of this – in addition to some 50 million euros in investment – will be at stake on 15 August when cosmonauts will install the ICARUS antenna on the outer surface of the ISS, a procedure expected to take a good seven hours. To ensure that everything runs smoothly, Wikelski and >



HARDLY BIGGER THAN A THIMBLE

The ICARUS transmitter only weighs five grams, so even small species can carry it. Solar cells on the surface of the transmitter generate the power.



THE ICARUS DATA STREAM

GPS tracking devices attached to the birds send movement data to the ISS. From there, the data are forwarded to the ISS Ground Station, the Control Center and the Operations Center. Here they are processed and fed, for example, into the Movebank where the data are pooled and made available to researchers.

“

IF ASTRONOMERS LISTEN IN ON SPACE TO LOCATE THE SOURCE OF SIGNALS, WHY DON'T WE BIOLOGISTS LISTEN IN ON THE EARTH FROM SPACE?”

his team will be present at the Russian control centre in Moscow, prepared to answer even the simplest questions.

Wikelski first had the idea for ICARUS 17 years ago while he was still doing research in the United States as a 35-year-old. One evening, he was sitting together with the experienced radio astronomer George Swenson. “He said to me, ‘Martin, you biologists have such a colossal topic, super important for the whole of humanity, and you’re still all running around in rubber boots. Think big, get together. We radio astronomers have filled whole valleys with our billion-dollar telescopes and are connected worldwide.’ So, we thought, if astronomers listen in on space to locate the sources of signals, why don’t we simply turn things around and listen in on the Earth from space?” On that evening, the two scientists drew up the basic plan for ICARUS.

At the time, Wikelski brashly predicted that he would have the antenna in place in three years. They turned into 17. Countless obstacles had to be overcome, technological hurdles mounted, funders convinced and disappointments

swallowed, for example when NASA or the German Ministry of Research turned him down. For years, ICARUS failed to get off the ground, but Wikelski hauled it over all the hurdles.

As it happens, “Mr Icarus”, as he is known in the community, nearly dropped out of research even before he had the idea for the project. “After studying and doing my doctorate in Bielefeld – including an extended research trip to South America in Humboldt’s footsteps – I felt the hierarchies in German research were awful.” In the mid-1990s, a friend told him about the Humboldt Foundation’s Feodor Lynen Research Fellowships for German researchers who wanted to go abroad and that there was a behavioural research professor in Seattle, Jim Kenagy, himself a Humboldtian, who hosted postdoctoral fellows. “My application was indeed approved and so I was able to go to America to work on tropical birds,” Wikelski remembers. The Humboldt Foundation, he says, laid the foundation stone for his career.

FIRST RESULTS IN 2019

During the time he spent in the US, Wikelski made a name for himself as an animal migration researcher. The elite university, Princeton, awarded him a lifetime professorship. Nevertheless, when he was offered the chance to return to Germany in 2008, he accepted, disillusioned by NASA’s rejection and the Bush administration’s hostility towards science.

Time shift. It is the beginning of September: the ICARUS antenna has been successfully installed – even the German news flagship Tagesschau reported on it. “Everything has gone brilliantly,” says Wikelski on the phone, “even though it was really stressful.” The first data are scheduled to flow in in the winter; the first results are expected in 2019. Wikelski is extremely satisfied. Long-time colleagues like Kasper Thorup, a zoologist at Denmark’s Natural History Museum in Copenhagen who has worked with Wikelski for ten years, admire his perseverance. “I have little doubt that ICARUS will now transform biology and ecology in particular.”

Modern animal telemetry has already jettisoned much of what was received wisdom in research on specific species and ecological interrelations. “ICARUS will dismantle a load of other dogmas, too,” Wikelski is convinced. He

now plans to recruit financially strong partners to expand the project and install additional antennas with satellites in space. By making animal observation from space more continuous, the aim is to gain a deeper understanding of the processes in nature. Global institutions like the World Health Organisation and the Intergovernmental Panel on Climate Change have already signalled their interest. “Although,” says Wikelski, “the best ideas about what we can do with ICARUS are actually yet to come.” ●



PROFESSOR DR MARTIN WIKELSKI

is the world’s leading expert on the global movements of migratory birds, reptiles, mammals and insects. He is a professor at the University of Konstanz and Managing Director of the Max Planck Institute for Ornithology in Radolfzell. After studying and taking his doctorate in Germany, he initially became a Humboldt Research Fellow in the United States, moving via the University of Illinois to Princeton University. In 2008, he returned to Germany to the ornithological station in Radolfzell. Wikelski has had a long relationship with the ornithological station. Aged just ten, he took photos of an invasion of cattle egrets in Bavaria and sent them to Radolfzell. The experts contacted him and introduced him to bird research. Wikelski has received numerous honours, including the 2016 Max Planck Research Award which was granted jointly by the Humboldt Foundation and the Max Planck Society.

THE LURE OF GERMANY

For years he had to justify why he was such a good friend to Germany. Today, U.S. science historian Myles W. Jackson has to explain to his friends why he doesn't want to work in Germany permanently despite having been offered a prestigious Humboldt Professorship. A guest editorial to mark The Year of German-American Friendship.

Text MYLES W. JACKSON *Illustrations* MIRIAM BAUER

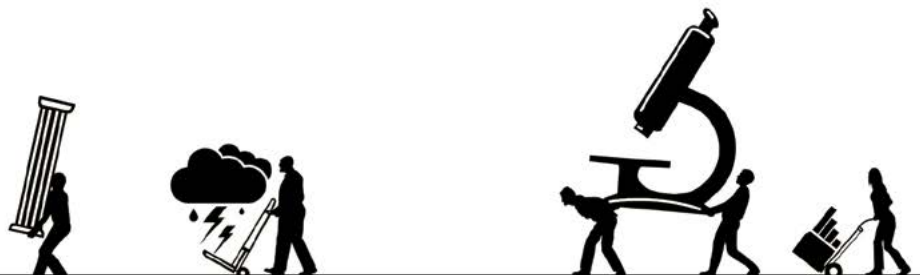


admire and applaud the decision of Germany's Foreign Office to declare 2018-19 "The Year of Germany" in the United States. The promotion of rational, intelligent dialogue and exchange stands in sharp contrast to Donald Trump's current hurling of insults at Germany. During this period of global anti-intellectualism the res publica litterarum must stand above the petty and treacherous politics of nationalism in order to encourage international exchange.

In the last decade, I have observed a fundamental change in the attitude of my academic colleagues to Germany. My first extended visit to Germany was in 1983. I was just 18 and an academic assistant at the Max Planck Institute of Biochemistry in Martinsried, near Munich. Since then, I've frequently been to Germany, most recently for a whole year to the Wissenschaftskolleg zu Berlin.

NOBODY UNDERSTOOD MY INFATUATION

In the 1980s, 90s and early 2000s, my colleagues couldn't understand why I was so – what they saw as – infatuated



with Germany. They thought it highly suspicious that someone who didn't have German ancestry spent so much of his time learning the language and studying German culture and history. I constantly had to justify myself, particularly to my Jewish colleagues, some of whom told me they would never set foot in Germany.

Today, I no longer need to explain why I chose Germany as the object of my research. I have also spoken to plenty of Jewish colleagues who are now quite positive about Germany and often travel there.

While Angela Merkel's willingness to accept refugees is contentious in Germany, a large number of U.S. academics have applauded her for it. Many of us praise the Chancellor for her central role in trying to stabilize relations between the U.S. and Germany in such a turbulent phase of our history. She is often described here as the leader of the free world.

Germany's reputation among academics in the U.S. has enhanced enormously. An increasing number of them are actively looking for ways to work in Germany. And academic cooperation between Germany and the U.S. really could be an effective antidote to the rhetorical blustering currently blighting Washington.

MACRON IS ALSO ROLLING OUT THE RED CARPET

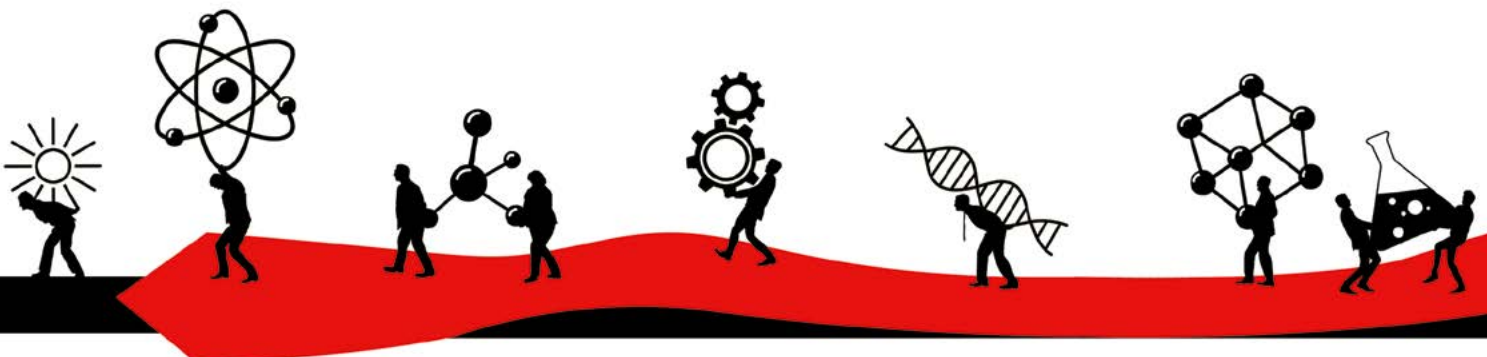
Given the present political climate, many of us are deeply concerned about the future of U.S. academic institutions. Will there be a brain drain in the United States if the current climate persists? Historians are generally hesitant to make any prognostications; however, early indications suggest that an exodus is possible. It wouldn't surprise me. At the end of December 2017, the first phase of French President Emmanuel Macron's goal to entice climate scientists to come to France was very successful: 13 of the 18 scientists awarded scholarships (among them several French nationals) had been working in the United States before Macron's initiative brought them to France. Similarly, Germany is attracting top researchers working in the United States with its Alexander von Humboldt Professorships. I was greatly honored to be offered one of them, and it was no easy decision to turn it down. It was only because I was

“

GIVEN THE POLITICAL CLIMATE, WILL THERE BE AN EXODUS OF ACADEMICS FROM THE U.S. ?”

offered a professorship at the Institute for Advanced Study in Princeton at the same time that I decided not to uproot myself and head for Germany.

In the first decade of the program, nearly half of the researchers who accepted an Alexander von Humboldt Professorship at universities in Germany came from the United States. Given the current U.S. administration's contempt for academic scholarship, coupled with Germany's conducive atmosphere and generous support for research, there is a very real chance that these figures will rise. I personally think that younger U.S. scholars are far more likely to take advantage of the resources provided by Germany and the European Union. Encouraging young researchers in the humanities, social sciences and natural sciences to spend time on research in both the United States and Germany would certainly facilitate a rich exchange of ideas between the two countries. >



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COOPERATION
BETWEEN
ACADEMICS IS
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WE COULD LEARN A LOT FROM ONE ANOTHER

We Americans are good at interdisciplinary research and teaching. We are often much more creative when it comes to crossing the boundaries between research areas. In Germany, on the other hand, the rigid definition of disciplines should be broken down more often. Universities here frequently base their future planning on past needs and miss the opportunity to re-design their fields of work. Most of us have come across the bureaucratic reputation of German universities that are thought to nip creativity in the bud. But there are also conservative faculties at American universities that are intent on carefully safeguarding their

interests. A number of universities have adopted a cluster strategy for appointments whereby colleagues from different disciplines cooperate on a certain topic.

Take human classification, for example. Here you could appoint researchers in molecular biology, sociology, anthropology and history of science. Then you establish new interdisciplinary programs which benefit both the relevant field of work and the students. Such appointments are often privately funded by organizations like the Andrew W. Mellon Foundation. Germany has introduced a similar initiative with the German Research Foundation's Collaborative Research Centres. It is of course difficult to develop a measurement method to determine the success of such programs, but this kind of flexibility in research and teaching does make sense if you want to respond to new challenges.

CHALLENGE: GENETIC RESEARCH

Another area with ample scope for knowledge sharing is how to handle genetic research. It confronts societies with existential questions that are posed differently in the two countries. In the United States, the question asked is: can one ascertain the 'race/races' of an individual from her DNA? What are the implications if one can, for example with regard to the issue of how different diseases affect different populations? For many researchers, the field of race and genomics is about redressing the sins of the U.S. medical community's past, such as the Tuskegee Syphilis Study, where African-American men were purposely not treated for syphilis between 1932 and 1972 in order to study the long-term effects of the disease. Today, studying race is no longer essentially about exclusion as it was in the past, but inclusion. Data are needed on the safety and efficacy of drugs for women and people of color: the white male has served his purpose as a universal research subject for health issues.

Another area of research is genetic privacy. Germany has very strict data protection laws. Again, this is a prod-



uct of its past. Does this hamper the sharing of information for research? A number of biomedical researchers in Germany claim that it does. The United States, on the other hand, is much more relaxed about information sharing. Despite the restrictions set in place by the Genetic Information Nondiscrimination Act (GINA) of 2008, personal genomics companies share the anonymized data of their clients with third parties, including Big Pharma and insurance companies. Personal genomics companies, such as 23andMe, AncestryDNA, and FamilyTree, advertise directly to U.S. consumers who wish to find out about their ancestry.

GERMANS DO THEIR GENETIC TESTING IN SWITZERLAND

The story is somewhat different in Germany, which has clearly had a checkered history with race and genetics during the Third Reich. Nevertheless, genetic testing is gain-

ing in popularity among Germans; interestingly, the analyses are undertaken in laboratories located in neighboring countries, such as Switzerland, and the results are then sent back to the clients. Germans are generally interested in genes associated with lifestyle and nutrition; questions about race and ethnicity are taboo. I think it's no exaggeration to say that Germany spends more time thinking about its past and about the ways that past impacts the present than any other country. *Vergangenheitsbewältigung*, that wonderful German word for the process of coming to terms with the past, always plays an important role when Germany attempts to resolve moral issues and make political decisions. Germany and the United States are both actively involved in the debates about CRISPR/Cas9, a new method that can edit genomes with unprecedented precision. The conversation between the two countries may help them to find the right balance between scientific innovation and ethical boundaries. ●



PROFESSOR DR MYLES W.

JACKSON is a faculty member of the School of Historical Studies at the Institute for Advanced Study in Princeton, New Jersey, USA, where he is also a Professor of Science History. In 2014, the Humboldt Research Fellow received the Reimar Lüst Award, which is jointly granted by the Humboldt Foundation and the Fritz Thyssen Foundation up to twice a year. Jackson has received many prizes and honors and is a member of numerous international bodies in countries like the United States, Belgium and Germany, including the German National Academy of Sciences Leopoldina in Halle (Saale).

PHILIPP SCHWARTZ INITIATIVE

Programme for threatened researchers cemented



Under its Philipp Schwartz Initiative, the Humboldt Foundation supports German universities and research institutions seeking to host threatened researchers from abroad as fellows. Previously, the programme had been extended from one round to the next, but is now being financed permanently by Germany's Federal Foreign Office. In the future, the Initiative will sponsor up to 50 Philipp Schwartz Fellowships every year.

Commenting on the decision to place the programme on a firm footing, Federal Foreign Minister Heiko Maas explained, "When the freedom of research is under ever greater threat worldwide and academic work is being politicised, we can't sit back and ignore it. We Germans, in particular, know only too well from our own painful history where this can lead." The Secretary General of the Alexander von Humboldt Foundation, Enno Aufderheide, said, "We are most grateful to the Federal Foreign Office for financing the initiative permanently. It sends a reliable signal: any researcher who is persecuted or threatened in their own country may find protection and solidarity in German science as a Philipp Schwartz Fellow."

The Philipp Schwartz Initiative was established by the Humboldt Foundation and Germany's Federal Foreign Office in 2015. It has also received financial support from various foundations at home and abroad. In the four selection rounds to date, 159 threatened researchers have been awarded Philipp Schwartz Fellowships. In the fourth and most recent round in summer 2018, 31 institutions were selected. They have been granted funding to support 35 researchers with Philipp Schwartz Fellowships. ●

FOR ADDITIONAL INFORMATION ON THE INITIATIVE, THE PARTNERS AND THE MAN BEHIND THE NAME: www.philipp-schwartz-initiative.de

COOPERATION

Humboldt Foundation receives €25 million of additional funding until 2024

The Munich-based Carl Friedrich von Siemens Foundation and the Humboldt Foundation are extending their cooperation. In the framework of this collaboration, which was launched in 2015, the Carl Friedrich von Siemens Foundation is providing a further €2.5 million annually for additional research fellowships, awards and fellowship supplements until 2024. This five-year extension benefits the Humboldt Foundation by a total of €25 million over the entire funding period.

The foundations are jointly granting Carl Friedrich von Siemens Fellowships to international researchers seeking to conduct a research stay in the greater Munich area as well as awarding the Alexander von Humboldt Foundation's Carl Friedrich von Siemens Research Awards, each valued at €65,000. The



Carl Friedrich von Siemens Stiftung

fellows and award winners are selected together with the applicants for standard Humboldt Research Fellowships or Humboldt Research Awards; there are no stipulations with regard to topics or countries of origin, selection is based solely on quality criteria.

Furthermore, all Humboldt Research Fellows who work in the greater Munich area receive a monthly fellowship supplement of €350. These supplements constitute the Carl Friedrich von Siemens Foundation's and the Humboldt Foundation's response to the cost of living in and around Munich which is considerably higher than elsewhere in the country. ●



Sofja Kovalevskaja Award Winners in Berlin: Federal Minister of Education and Research Anja Karliczek, Milica Gašić, Kenji Fukushima, the Foundation's president Hans-Christian Pape (top row, fltr), Aydan Bulut-Karslioglu, Fritz Renner, Hitoshi Omori (front row, fltr). Not in photo: Paola Pinilla

AWARD CEREMONY

New Sofja Kovalevskaja Award Winners honoured

Six international research talents have received this year's Sofja Kovalevskaja Awards. Valued at up to €1.65 million each, the awards were conferred in November by Germany's Federal Minister of Education and Research, Anja Karliczek, and the President of the Alexander von Humboldt Foundation, Hans-Christian Pape, in Berlin.

The three female and three male researchers, all aged between 31 and 36, will now relocate to German universities from abroad. They will use their award money to build their own research groups in Berlin, Bochum, Freiburg, Heidelberg, Saarbrücken and Würzburg; they previously conducted research in the United States, the United Kingdom and Japan.

With the Sofja Kovalevskaja Award young researchers receive risk capital during an early phase in their careers to conduct innovative projects and, in the process, are given the opportunity to work independently and bear responsibility. They spend a period of up to five years at German universities and research institutions, developing their own research groups at their host institutes. The award is one of Germany's best-endowed research awards and is financed by the Federal Ministry of Education and Research. ●

 MORE INFORMATION

www.humboldt-foundation.de/web/dossier-kovalevskaja-award.html



FULL THRUSTERS AHEAD!

Who actually does what at Humboldt headquarters? Who are the people behind the scenes making sure that everything runs smoothly? This page is devoted to the colleagues at the Humboldt Foundation, their lives at work and beyond.


TODAY: SVEN VORBACH.

Now, before anyone starts cracking stupid jokes: no, this is not what I usually wear to work. At the Foundation, I prepare and organise the committee meetings in which the new fellows in the Humboldt Research Fellowship Programme are selected. At these meetings, up to 60 professors, our peer reviewers, get together at the Humboldt Foundation for two days to make decisions on some 600 plus applications. Each of them presents the applications that fall within his or her area of expertise to the other committee members. Then they discuss them and vote on them. If I appeared dressed as Captain Kirk from Star Trek, I might be a bit of a distraction. I wear this costume when I go to Star Trek conventions, where I have sometimes seen Humboldtians, by the way. But this is not so surprising: there are some scientists whose interest in the universe and science was actually inspired by Star Trek and other science fiction series when they were

young. That's partly what I find so exciting. So actually, it's really quite fitting that I work for the Humboldt Foundation.

To ensure everything runs smoothly during the selection committee meetings, a great deal of organisation is required. All the meeting documents have to be compiled and distributed in advance. Late reviews have to be added and sent to the committee, and the proceedings have to be planned: Who will arrive and depart when? In what order will people speak and how will we cope if someone arrives late or has to cancel at short notice? Who still needs a hotel? Who has to leave early because of an urgent appointment? Questions like this make every committee meeting into a logistical challenge. But I enjoy organising it all. And if, like me, you take your inspiration from Captain Kirk, you just love challenges. Full thrusters ahead! ●

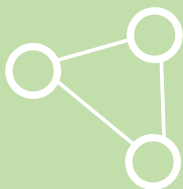
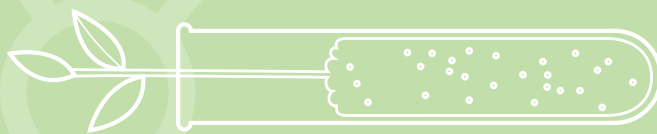
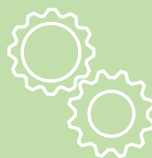
Recorded by **GEORG SCHOLL**

A high-angle photograph of a waterfall in a dense tropical forest. The waterfall is the central focus, cascading over dark rocks into a pool of water. The surrounding forest is thick with various shades of green, including some trees with yellowish-orange foliage. The scene is framed by dark, out-of-focus branches in the foreground.

THIS IS WHERE THE ENGLISH VERSION FINISHES.

BITTE WENDEN SIE DAS HEFT,
UM DIE DEUTSCHE FASSUNG ZU LESEN.

PROMOTE THE HUMBOLDTIANS OF THE FUTURE



Help to support our work and create scope for additional offers, new ideas and initiatives.

Please use the following bank account for your donations:

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