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Cover: AG Dausmann

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Rüdiger Heimlich

# “Just Call Me a Desert Researcher”

Whether in documentary films, exhibitions, talks or articles, for decades the Cologne-based geologist and climate scientist Stefan Kröpelin has been popularising the history, landscapes and people of the Sahara. As a field researcher and in many ways a “science ambassador”, the DFG and the Stifterverband have chosen him as the recipient of this year’s Communicator Award.



The international journal *Nature* simply calls him the “man of the desert”. German radio station Deutschlandfunk has dubbed him the “German Indiana Jones”, and a Saudi glossy magazine the “veteran” of Sahara research. Stefan Kröpelin prefers to be simply named a “desert researcher”, a geoscientist whose interest lies in the climate history of North Africa as well as in archaeology and nature conservation. “We travel through regions which no scientist has ever visited before and won’t visit again for a long time. You need to be open to anything and everything you encounter.”

That might mean caves with rock paintings or the remains of freshwater shells in the desert sands. It might also mean scorpions in your sleeping bag, bandits or refugees in desperate search of water. What does a desert researcher need, apart from scientific expertise? A feel for people and landscapes, patience, determination and a large pinch of luck.

Stefan Kröpelin has had all of these over the last four decades. When he recounts – and Kröpelin is an engaging speaker – the risky situations he and his teams have often found themselves in, sometimes without any apparent way out, his tales could easily beat any adventure novel. Little wonder, then, that even Google founder Larry Page or the President of Chad, Idriss Déby Itno, both listen to him with fascination.

So is he Germany’s answer to Indiana Jones? Stefan Kröpelin smiles. The media love exciting pictures, the scent of adventure and danger, secrets and treasure-hunting. In 2006, Kröpelin appeared in a ZDF documentary, *Magische Welten: Aufbruch ins Ungewisse* (Magical Worlds: Advance into the Unknown), introducing millions of viewers to regions of which there are scarcely any maps. Right at the start of the expedition, a differential gear breaks down. Then Kröpelin scrambles into a dried-up well where a scorpion crawls into

his shirt. Kröpelin’s films reveal the adventurous side of research, but “I’m no adventurer”, he says. “Our work comes with risks attached, and yes, we’re looking to uncover secrets: What did the Sahara look like at different points in its history? When were humans able to cross it?” Kröpelin has also found a treasure – in the depths of Lake Yoa in northern Chad.

After a gruelling journey over 1,200 kilometres of desert terrain, in November 2010 Kröpelin’s expedition team from Cologne reached the Ounianga oases: 18 deep blue lakes surrounded by palm trees and yellow-green fields amid an ocean of sand. It’s an ecological sensation: saltwater and freshwater lakes 1,000 kilometres away from the Nile, fed by ancient groundwater.

“We were lucky on our mission because there was relatively little wind,” says Kröpelin. “There are days when the wind just blows you down and all you can do is crawl across the sand on all fours.” The

*It’s not just rock paintings that interest the researcher – documentation with the camera is part of fieldwork, as here on the Ennedi Plateau in Chad. The sandstone complex in the Sahara was added to the UNESCO list of World Heritage Sites in 2016.*



Illustration: Adam Polczyk / U. Cologne



Illustration: Uwe George

*Lake Yoa at Ounianga against the imposing backdrop of the Sahara: the first samples were taken in 1999 from a platform. There are currently 19 lakes at Ounianga, covering a total area of 15 square kilometres – the largest and most famous in the Sahara.*

team takes a platform out on the gently windblown lake and slowly sinks an acrylic glass tube, metre by metre, to the 25-metre deep bottom. Then the hard work begins. In the sweltering heat, they use a weight to drive the bore cylinder into the soft lake bed. They work for days, one blow after the other, pushing it 16 metres down. Every so often they pause to carefully lift the tube out. After all they extract 16 metres of mud. A closer examination reveals over 20,000 fine sediment layers, in every colour from ochre to dark grey – a unique and complete climate archive containing seasonally layered deposits from the past 10,500 years.

Kröpelin and his colleagues can read it like a book: the greening and gradual desiccation of the Sahara, as well as shorter-lived events such as heavy rains, periods of drought, sandstorms, savannah fires, volcanic eruptions, earthquakes and nuclear tests, or the time when crops such as

date palms were introduced. “These lakes are a treasure. The Sahara is as big as the USA, but no one would have expected such an undisturbed, continuous geo-document in the middle of the world’s driest desert.” Kröpelin considers it the high point of his research.

The desert has fascinated him ever since he was at school. His father was a senior political editor with broadcaster Bayerischer Rundfunk and his mother a lawyer in Munich. They encouraged their son’s reading habit, which took him on journeys of the imagination with the likes of Heinrich Barth, Gustav Nachtigal and *Gods, Graves and Scholars* by C. W. Ceram. In conservative Bavaria, his parents were liberal and independent – traits they passed on to their son. In 1968, he was expelled from school due to “political agitation”. Unsurprising, perhaps, as during this period Stefan

was playing on the stage of the Action Theatre beside Rainer Werner Fassbinder.

He completed his schooling in Berlin and had a series of temporary jobs, working as a scaffolder, a detective or a Santa Claus. During film festivals he served as a “guest officer”, guiding visitors such as Jack Nicholson, Robert de Niro and David Bowie through Berlin’s nightlife. “Wild years,” recalls Kröpelin with a grin. This enabled him to finance his trips. In 1970, he set out on his first trip in an old Volkswagen van that only cost 100 Deutschmarks, which took him to Afghanistan and the Dalai Lama in the Himalaya. At Berlin’s Technical University he studied what was then the new subject of computer science. In 1977, after sitting the intermediate exams, he switched to geography and geology. “Unless you wanted to be a teacher, there was little in the way of job prospects. But that didn’t put me off.”

In 1982, the interdisciplinary research project “Occupation History of the Eastern Sahara” took Kröpelin to the Gilf Kebir – a remote, as yet largely unresearched sandstone plateau in southwestern Egypt. “I was never interested in travelling to places where people had already carried out a hundred investigations, just to add publication number 101. I found the last remaining ‘unexplored bits’ on the map much more exciting.” He spent a week studying geological deposits and prehistoric sites, all alone – and was worried about dying of thirst because his colleague failed to pick him up on time. He was on the point of considering the 200-kilometre walk to the next source of water when the vehicle finally came into view.

He had another stroke of luck with the DFG Collaborative Research Centre 389, which took him after the end of the Berlin-based geoscientific Collaborative Research Centre 69 “Arid Areas” to the University of Cologne in 1995. Here at the “Africa Research Centre”, a team

of archaeologists, botanists, zoologists, ethnologists, anthropologists and linguists has been studying the prehistory and protohistory of the eastern Sahara since 1986. “When we first started, there was hardly any research done in this part of the Sahara. Obviously there were the early discoveries of Rohlf, Frobenius and Rhotert, as well as of pioneers like the ‘English Patient’, Ladislaus Almásy. But the interdisciplinary basic research was new.”

In 2003, the multipart WDR documentary *Wenn Weiden zu Wüsten werden* (Meadows Become Deserts) vividly told the story of the climate history of the Sahara. “We don’t research for our own benefit,” says Kröpelin. “It’s our job to pass on our knowledge to those who fund our work – the public.” Kröpelin does this through TV programmes for schools, science magazines like *W wie Wissen* (K for Knowledge) and countless radio interviews. He doesn’t shy away from the popular – as when the food team on consumer programme *Servicezeit* enquires about the expedition’s menu plan –

or the controversial – as when talk shows probe him about his views on the Darfur conflict.

In the framework of the Collaborative Research Centre 389 with its acronym ACACIA (Arid Climate, Adaptation and Cultural Innovation in Africa), Kröpelin together with archaeologist Rudolph Kuper of the Cologne Institute of Prehistoric Archaeology and a large number of colleagues formed expedition teams which, since 2009, have been attempting to trace “Our Way to Europe” in a third DFG Collaborative Research Centre 806.

A first milestone was the exploration of Wadi Howar in northern Sudan, a former river system and once the most important tributary of the Nile from the Sahara. On its sand-covered banks, the researchers discovered early signs of settlement. At Abu Ballas, an outlier in Egypt’s Western Desert, they study rounded water jars – a refuelling point for pharaonic military and trade caravans. This is followed by expeditions to the Gilf Kebir Plateau, the Great Sand Sea with its longitudinal dunes of over 100 metres in height and hundreds of kilometres in length, Sudan, Libya, and finally Chad.

Kröpelin has now notched up over 60 expeditions. “Since I was 18, there have only been a few years of my life when I haven’t been in the desert. You either love it or you hate it,” he says. “Aside from my scientific curiosity, what fascinates me is the complete contrast to the way of living in the Western world. Every night means a different camp in the wind shadow of a dune, under an unbelievably clear starry sky. Sometimes it’s so quiet that you can hear the hiss of shooting stars. You live very abstinently, of just a few litres of water per day, and you eat and sleep very



Broadcaster ARTE filming at Wadi Sura, at the foot of the Gilf Kebir plateau in Egypt with the “Cave of Swimmers” in the background.

simply. There’s a feeling of being close to nature, of unlimited freedom.”

Perhaps he shares this feeling with the people whose trail he is following: anatomically modern humans who once set off from Ethiopia for Europe – where they encountered people who had made the journey long before them. “Out of Africa II” probably began over 100,000 years ago when the Sahara was undergoing a green phase that allowed people to cross it. “Out of Africa III” then occurred during the last wet phase, which began 11,000 years ago. The Sahara has experienced recurrent climate changes. Sometimes it has acted as a barrier, sometimes as a green corridor between south and north. The core sample from Lake Yoa now enables researchers to reconstruct the epoch since the last cold period, the Holocene, with the transition from hunters, fishers and gatherers to Neolithic herders and farmers, at unrivalled accuracy.

This kind of work would be impossible without the support of the local population, says Kröpelin. This is why he presents the results of his research in the media in the host countries and thanks people for the help received. Kröpelin appears so frequently on *TeleChad* that he is even recognised in remote regions of the country. The fact that Chad now boasts two World Heritage Sites – the lakes of Ounianga and the Ennedi Massif – is due in part to his media presence. Lobbying UNESCO requires public awareness. So he never tires of telling people about these landscapes and their conservation.

As Stefan Kröpelin talks, it’s hard to believe that this bundle of energy is 65 years old and due to retire in summer 2017. Will he stay at home with his wife and nine-year-old youngest son? “I’ll definitely be spending more time at my desk and working on books,” he says, but in November he is heading back to

the volcanic Tibesti Mountains in Chad to conduct basic research for their protection as another UNESCO World Heritage Site. “It’s the Hawaii of the desert”, he says enthusiastically, many parts of which have yet to be explored by scientists – the kind of place, in fact, where Stefan Kröpelin well and truly belongs.



Guest author

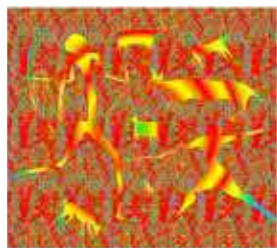
**Dr. Rüdiger Heimlich**

is a member of the editorial team of the newspaper *Kölner Stadt-Anzeiger*; he has been writing for many years and with considerable insight about Dr. Stefan Kröpelin’s desert research and expeditions.

More information about Kröpelin’s work is available at: [www.sfb806.uni-koeln.de/index.php/profile/userprofile/skroepelin](http://www.sfb806.uni-koeln.de/index.php/profile/userprofile/skroepelin)



Cologne-based geologist Dr. Stefan Kröpelin is the 17th recipient of the Communicator Award – Science Award of the Donors’ Association. In addition to the prize money of €50,000, the prizewinner receives a personalised hologram created by Cologne-based painter Bleyenberg. The hologram illustrates and symbolises how scientific “right light” to make colours visible. The Communicator Award has been presented annually since 1999. It honours researchers in any field who communicate the results of their research work to the media and the general public in an outstanding and effective way. The selection criteria include the breadth and variety of the communication strategy as well as its originality and long-term impact. The winner is chosen by a jury of communication researchers, journalists and PR experts chaired by a DFG Vice President. **RU**



Hologram: Michael Bleyenberg

[www.dfg.de/en/funded\\_projects/prizewinners/communicator\\_award](http://www.dfg.de/en/funded_projects/prizewinners/communicator_award)

## The Deutsche Forschungsgemeinschaft

The Deutsche Forschungsgemeinschaft (DFG, German Research Foundation) is the central self-governing organisation responsible for promoting research in Germany. According to its statutes, the DFG serves all branches of science and the humanities. The DFG supports and coordinates research projects in all scientific disciplines, in particular in the areas of basic and applied research. Particular attention is paid to promoting early career researchers. Scientists and academics who work at a university or research institution in Germany are eligible to apply for DFG funding. Proposals will be peer reviewed. The final assessment will be carried out by review boards, the members of which are elected by researchers in Germany in their individual subject areas every four years.

The DFG distinguishes between the following programmes for research funding: In the *Individual Grants Programme*, any researcher can apply for financial assistance for an individual research project. *Priority Programmes* allow researchers from various research institutions and laboratories to cooperate within the framework of a set topic or project for a defined period of time, each working at his/her respective research institution. A *Research Unit* is a longer-term collaboration between several researchers who generally work together on a research topic at a single location. In *Central Research Facilities* there is a particular concentration of personnel and equipment that is required to provide scientific and technical services.

*Collaborative Research Centres* are long-term university research centres in which scientists and academics pursue ambitious joint interdisciplinary research undertakings. They are generally established for a period of twelve years. In addition to the classic Collaborative Research Centres, which are concentrated at one location and open to all subject areas, the DFG also offers several programme variations. *CRC/Transregios* allow various locations to cooperate on one topical focus. *Humanities Centres for Advanced Studies* are designed to support the transition in the humanities to an integrated cultural studies paradigm. *Transfer Projects* serve to transfer the findings of basic research produced by Collaborative Research Centres into the realm of practical application by promoting cooperation between research institutes and users.

*DFG Research Centres* are an important strategic funding instrument. They concentrate scientific research competence in particularly innovative fields and create temporary, internationally visible research priorities at research universities.

*Research Training Groups* are university training programmes established for a specific time period to support early career researchers by actively involving them in research work. This focuses on a coherent, topically defined, research and qualification programme. Research Training Groups are designed to promote the early independence of doctoral researchers and intensify international exchange. They are open to international participants. In *International Research Training Groups*, a jointly structured doctoral programme is offered by German and foreign universities. Other funding opportunities for qualified early career researchers are offered by the *Heisenberg Programme* and the *Emmy Noether Programme*. In so-called *Reinhard Koselleck Projects*, the DFG supports especially innovative research undertakings by outstanding scientists and academics.

The *Excellence Initiative* aims to promote top-level research and improve the quality of German universities and research institutions in the long term. Funding is provided for graduate schools, clusters of excellence and institutional strategies.

The DFG also funds and initiates measures to promote scientific libraries, equips computer centres with computing hardware, provides instrumentation for research purposes and conducts peer reviews on proposals for scientific instrumentation. On an international level, the DFG has assumed the role of Scientific Representative to international organisations, coordinates and funds the German contribution towards large-scale international research programmes, and supports international scientific relations.

Another important role of the DFG is to provide policy advice to parliaments and public authorities on scientific issues. A large number of expert commissions and committees provide the scientific background for the passing of new legislation, primarily in the areas of environmental protection and health care.

The legal status of the DFG is that of an association under private law. Its member organisations include research universities, major non-university research institutions, such as the Max Planck Society, the Fraunhofer-Gesellschaft and the Leibniz Association, the Academies of Sciences and Humanities and a number of scientific associations. In order to meet its responsibilities, the DFG receives funding from the German federal government and the federal states, as well as an annual contribution from the Donors' Association for the Promotion of Sciences and Humanities in Germany.



Who are we? Where do we come from? These are some of the big questions which are posed over and over – and which continually prompt a bewildering array of answers. Researchers in Leipzig recently made headlines when they relocated the possible cradle of humanity from one end of Africa to the other. Could Morocco be the place of origin of *Homo sapiens*, rather than Ethiopia and South Africa? Or could it be all three? This issue of the DFG magazine also provides several perspectives on research in palaeoanthropology and archaeology and how it is communicated to a non-scientific audience. We profile Stefan Kröpelin, a Cologne-based Sahara researcher and the recipient of this year's Communicator Award, and pay a visit to the Neanderthal Museum to see an exhibition, based on the results of a DFG-funded Collaborative Research Centre, on "2 Million Years of Migration" – the second part of our series on "Migration and Refugees". Not featured in this issue, but on show in Berlin's WissenschaftsForum through mid-January 2018, is a photographic exhibition exploring the oldest traces of settlement in the Americas. The photographs by André Pessoa – a stunning example of which can be seen above – reveal the fascinating World Heritage Site of Serra da Capivara in Brazil.

## Impressum

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