



# SCIENCE

## through the lens

**The South African Agency for Science and Technology Advancement (SAASTA) recently announced the results of the biennial SA Science Lens® competition.**

For this 11<sup>th</sup> round of the competition, SAASTA teamed up with the Human Sciences Research Council (HSRC) to celebrate all natural and social sciences for the 20-year anniversary of the National Research Foundation (NRF) and the 50-year anniversary of the HSRC. SAASTA is a business unit of the NRF, with the mandate to advance public awareness, appreciation and engagement of science, engineering, innovation and technology.

Through the SA Science Lens® competition, SAASTA and the HSRC aim to encourage researchers and scientists to invite the public into their world through inspiring curiosity in beautiful, dramatic or interesting photographs of their research. The competition also aims to encourage the public to appreciate and find science in their everyday lives, showing how they can view the world around them from a scientific perspective.

There were four categories in the competition, but the HSRC also contributed a special award for the best photo from any category representing social science.

*Quest* presents only the winning images here, but the full results of the competition can be found at: <https://www.saasta.ac.za/competitions/sa-science-lens/>.

### Science as Art

This photo was taken during a necropsy (animal autopsy) on a caracal conducted by Dr Laurel Serieys and PhD student Gabriella Leighton at the University of Cape Town, as part of the Urban Caracal Project. Necropsies are done to determine the likely cause of death, to collect data on morphology, and to obtain samples for disease- and pesticide-testing, all of which are important for wildlife conservation. Here, artist Sujay Sanan is making a rough anatomical sketch of the dead caracal. This was preliminary work for watercolour paintings, displayed at his solo exhibition, *A Place I Know*, which documented the landscapes, flora and fauna of the Western Cape in a unique way.

Kervin Prayag recently completed his MSc in biological sciences at UCT, where his research explored climate change effects on the nutritional value of maize and wheat plants. He is now an intern at C4 EcoSolutions, but enjoys nature and wildlife photography in his spare time.



**'Meowy Muse' by Kervin Prayag**

### Science Close-up

The smiling face that resembles a theatrical mask, and other seemingly laughing shapes around it, are tiny crystals of fluorite, the mineral form of calcium fluoride ( $\text{CaF}_2$ ). The brown background is the mineral goethite, an iron-hydroxide. This is a 4 cm wide area on a sample from a fluorite mine in Gauteng. South Africa has some of the world's largest reserves of fluorite, which is used in a wide variety of chemical, metallurgical and ceramic processes. The term 'fluorspar' is used for fluorite sold as a bulk material or in processed form.

Bruce Cairncross is Professor of Geology at the University of Johannesburg, and has a special interest in mineralogy. He has written a number of books, most recently on the minerals and gemstones of East Africa.



**'Happy Faces' by Bruce Cairncross**

## Science in Action

A white-browed sparrow weaver (*Plocepasser mahali*) undergoes surgery in the Kalahari for insertion of a miniature data logger, which will allow researchers to study its thermal regimes. To make the procedure easier and less stressful for the birds, a researcher will catch them in their roosting chambers at night, anaesthetise them, make a tiny incision, insert the data logger and stitch them up – all within a few minutes. It has only been possible in the last few years to build data loggers that are small enough to fit into such tiny birds without constraining their movements, particularly their flying abilities. This study was the first to implant data loggers into this species, with the aim of improving understanding of a small piece of the Kalahari ecosystem.

Thilo Beck came to South Africa from Germany in 2018 to do his MSc degree at the University of the Witwatersrand (Wits). His research focuses on the impact of climate change on Cape cobras and boomslang in the Kalahari.



'Small-scale Surgery' by Thilo Beck

## The Dignity of All South Africans

Scientific solutions to everyday problems don't need to be fancy. In the face of Cape Town's water crisis, a community member created a solution that allowed more users to collect water from Newlands Spring in an efficient manner. The simple pipe system – cobbled out of PVC pipe, string, wire and corks – transformed one awkward, muddy access point into 26 outlets for filling containers. With strict water restrictions in place to relieve pressure on dangerously low dam supplies, this system of pipes let thousands of people collect water from a natural spring to augment their household allocations of municipal water and reduce their water bills. It also saw people from disparate communities coming together to cooperate in a shared communal space.

Morgan Trimble grew up in the USA but completed her MSc and PhD degrees in ecology at the University of Pretoria. She is now a freelance photographer and writer



'Newlands Spring's Community Spirit' by Morgan Trimble

based in Cape Town. She has received a number of photography awards, including the Royal Photographic Society's 2019 Science Photographer of the Year.

## Social Science Award

Apartments in the inner-city suburb of Doornfontein, Johannesburg, seem to be decorated with giant metallic flowers in the form of satellite dishes. This is an impoverished area of immigrants and students, where people are crammed into small apartment spaces built to house a substantially smaller number of people. As satellite television generally includes programmes from around the globe, it allows many immigrants to receive entertainment from their home countries, connecting them to their own people and cultural heritage.

Dhruti Dheda obtained her MSc degree in chemical engineering at Wits, where she is now a researcher in the Industrial and Mining Water Research Unit. She plays an active role in Engineers Without Borders South Africa and Geeky Girl Reality, an initiative focused on increasing female representation in science, technology, engineering and maths (STEM).



'Connecting Worlds' by Dhruti Dheda

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