



Royal Society of South Africa Newsletter

December 2025

PROMOTING SCIENCE - RECOGNIZING EXCELLENCE IN RESEARCH AND SCHOLARSHIP

News from Fellows and Members of the RSSAf



Congratulations to Prof. Em. Jane Carruthers, FRSSAf, who is the South African Journal of Science Outstanding Article Awardee for 2025 for her article [The South African Journal of Science: A biography.](#)

Dr Suresh Naidu Krishna, MRSSAf, was recently selected to serve on the *African Phytomedicine Scientific Society* (APPS) Board. In addition, Dr Suresh Naidu Krishna has been recognised by Universities South Africa (USAF) in appreciation of impactful mentorship and sustained contribution to the Thuso Connect community.



Emeritus Prof. Rajend Mesthrie, FRSSAf, was installed International Fellow of the British Academy in September. For more details, see: <https://www.news.uct.ac.za/article/-2025-07-22-uct-linguist-elected-to-british-academy>.

Prof. Addmore Shonhai, FRSSAf, was recently awarded a Fulbright Fellowship, facilitating a visit to Hampton University (Virginia, USA) from 01 October 2025 until the end of June 2026. His host, Dr Graham Chakafana, is based in the Chemistry and Biochemistry Department at Hampton University.



Prof. Mike Wingfield, FRSSAf, was recently awarded 'an honorary doctorate by the Swedish University of Agricultural Sciences (SLU) in recognition of his pioneering contributions to global forest science'. For more details, see: <https://www.up.ac.za/news/swedish-university-honours-scientist-forest-research>

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General News Items

The seminar 'Nonlinear Dynamics and Anomalous Transport in Low Dimension' (<https://www.pks.mpg.de/heraeus26>) is being organised by Prof. Haris Skokos (Department of Mathematics and Applied Mathematics, University of Cape Town) and Prof. Roderich Moessner (Director of the Max Planck Institute for the Physics of Complex Systems, Dresden, Germany). The conference is due to take place in Cape Town, 2-6 February 2026, and is generously supported by the Wilhelm and Else Heraeus Foundation (Germany).

This event is devoted to covering developments on unconventional dynamics and transport in low dimensions. The format is chosen to maximise accessibility to a diverse set of participants, covering a range of subjects, starting from an introduction to the basic notions field, and leading up to the cutting edge of current-day research. The event is aimed at bringing together different communities that have studied anomalous dynamics and transport in low dimensions. The workshop is particularly aimed at research in southern Africa, with an emphasis on career stages up to junior faculty. The meeting aims to enable contacts between researchers based in Africa and in Germany at similar career stages, in the hope that these will persist as the researchers move ahead in their careers.



WILHELM UND ELSE
HERAEUS-STIFTUNG



South African-German WE-Heraeus Seminar: Nonlinear dynamics and anomalous transport

International Workshop 2 - 6 February 2026 Cape Town, South Africa

The study of unconventional dynamics and transport in low dimension has a long and distinguished history. It is thus perhaps surprising how much progress this field has seen in recent years, both in theory and experiment. This event is devoted to covering these developments in depth, starting from an introduction to the basics of the field and leading up to the cutting edge of current day research. The goal of this event is to bring together different communities which have studied anomalous dynamics and transport in low dimensions.

The format is chosen to maximise accessibility to a diverse set of participants. It is particularly aimed at researchers in the south of Africa, with an emphasis of career stages up to junior faculty. We aim to enable contacts between researchers based in Africa and in Germany at similar career stages, in the hope that these will persist as the researchers move ahead in their careers.

Topics include:

- Anomalous dynamics and transport
- Many-body dynamics
- Nonlinear and chaotic dynamics
- Nonlinear lattices
- Quantum transport
- Thermalization
- Non-Hermitian dynamics
- Large deviations
- Disordered systems

Applications received before 30 September 2025 are considered preferentially.

Applications are welcome and should be made by using the application form on the website of the event. Applications received before 30 September 2025 are considered preferentially. The number of attendees is limited.

For further information please contact:
heraeus26@pks.mpg.de
<https://www.pks.mpg.de/heraeus26>

Venue:
University of Cape Town
Graduate School of Business Conference Centre
Cape Town, South Africa



List of invited participants

Vassos Achilleos (FR)
Nora Alexeeva (SA)
Igor Barashenkov (SA)
André Botha (SA)
Pieter Claeys (DE)
Henrik Dreyer (DE)
Fabian Essler (UK)
Johanne Hizanidis (GR)
Stefan Kettermann (DE)
Stefano Lepri (IT)
Joel Moore (US)
Tomaž Prosen (SI)
Peter Schmelcher (DE)
Georgios Theocharis (FR)
Hugo Touchette (SA)
Ruben Verresen (US)
Paul Wofofo (CM)

Scientific coordinators

Roderich Moessner
(MPI-PKS Dresden)

Haris Skokos
(University of Cape Town)

Organisation

Kristina Alibabiev
(MPI-PKS Dresden)

Yvonne Brown
(University of Cape Town)

Wilhelm und Else Heraeus-Stiftung
University of Cape Town (UCT)

In cooperation with the Max Planck Institute for the Physics of Complex Systems



General News Items

Professor Mike Bruton, FRSSAf, presented “The significance of Charles Darwin’s visit to the Cape of Good Hope in June 1836” talks in Gauteng

For the Northern Branch of the RSSAf, Prof. Mike Bruton FRSSAf presented two talks in September on “The significance of Charles Darwin’s visit to the Cape of Good Hope in June 1836” as the *Brian Warner Memorial Lectures*. The first was in collaboration with Ditsong Museums of South Africa, held at Ditsong National Museum of Natural History, Pretoria, on 8th September 2025, with 13 attendees. The second was at Roedean School, Parktown, Johannesburg, on 9th September 2025, with 21 attendees. Refreshments were served afterwards.

Although Prof. Bruton has had a lifelong interest in Charles Darwin and his theory of evolution, the rationale of these talks was that they followed the 2025 celebration of Darwin’s visit to the Cape of Good Hope in May-June 1836 on the *HMS Beagle*. This celebration culminated in the unveiling of a bust of Darwin in Simon’s Town near where *HMS Beagle* had been moored, and a play, “Darwin: a Curious Mind”, was presented by the Theatre for Africa, at the Galloway Theatre, Cape Town, in April 2025, as well as many other events. Darwin’s visit was important because it occurred near the end of his five-year voyage on the *HMS Beagle* and was the first opportunity he had to discuss his burgeoning ideas on evolution with other scientists. These scientists were Sir Andrew Smith, Sir Thomas Maclear, and Sir John Herschel. Prof. Bruton’s talks discussed the impact of Darwin’s conversations with these eminent scientists on his ideas, as well as the observations he made in the Cape in support of his theory. The discussions with Sir John were very important, and together with their subsequent correspondence, may have contributed significantly to the development of Darwin’s theory of evolution.

At both venues, Prof. Bruton presented books on Darwin to the institutions.



General News Items

National School Science Essay Competition

We are pleased to announce the [Winners](#) of our National School Science Essay Competition for 2025, generously sponsored by the **Claude Leon Foundation**.

The Society salutes all the learners, from all parts of the country, who entered and the teachers who encouraged them to do so, even though it meant extra work for everyone. All winning schools have received their Prizes and Certificates. The Society also thanks the Essay Competition Convenor, Professor Tanya Augustine, the Committee and Markers, Professors Lesley Cornish and John Wilson, and of course, our generous sponsors, the **Claude Leon Foundation**.



Notable aspects of the Competition were that a school from the Cape Flats, Rocklands High School, in Mitchells Plain won three prizes; and that the youngest First Prize winner of the Competition was Nilaya Jhilmeet, Grade 6, Hamilton School in Ladysmith, KwaZulu-Natal, pictured here with her Teacher, Mrs S Govender.

Feedback from Learners and Teachers

Sinelethu Mgedisi, Grade 12, Alexander Road High School, Gqeberha: "Writing my first professional and scientific essay has been quite an eye-opening experience, revealing how much work goes into researching a single topic. I have learned so much in the hours I spent deepening my knowledge of stem cells. This writing process has strengthened both my appreciation for and curiosity about science. Being given the opportunity to write for the Royal Society is an opportunity I never imagined I could have, and having received recognition for my efforts gives me the motivation to continue exploring science and possibly sharing the discoveries I make with others. I hope to make meaningful and impactful contributions to science in the future." Her teacher, Oliver Starbuck, went on to say, "one of our other learners also had this to say: "Writing a professional science essay not only broadened my knowledge on my chosen topic, but also invoked a passion inside of me when it comes to research. My writing, researching, and referencing skills were also greatly improved. Overall, it was a positive learning experience."

George Cox, in Grade 12, St Alban's College, Pretoria, wrote, "I would like to share my gratitude for the opportunity to participate in this competition. Beyond the prize itself, I found the experience very rewarding. The process of researching and writing the essay allowed me to develop my critical thinking and academic writing skills. I also enjoyed exploring the subject in depth and presenting my findings in a professional manner."

Maureen Pollack, a teacher from Springfield Convent, said "Thank you so much for the lovely experience, and the way in which it was run made it very easy for the school to manage too.

Kelsay Zaphi, Grade 12, Rhenish Girls High, said "I found the process of writing my essay for this competition extremely enjoyable! The research was extremely fascinating and the act of writing a professional science essay was exciting. I realised just how much I enjoy doing scientific research and was reassured that I would in fact enjoy a career in STEM."

General News Items

Royal Society Award Luncheon 2025

This year, the Society's annual luncheon for the induction of new Fellows and the awarding of medals for 2025 took place in Cape Town on 25th October at the Kelvin Grove Club in Newlands.

Apart from the Inductees and their partners, we were pleased to welcome these Fellows, some of them of very longstanding: John Field ('89), Robin Crewe ('90), James Bull ('91), Mike Bruton ('92), William Bond ('98)*, Val Mizrahi ('00) and Jacek Banasiak ('23).

Society President Lesley Cornish and Vice President Kathy Myburgh performed the Inductions and awarded the Medals. Some members of Council were also present: Igor Barashenkov FRSSAf, Chris Chimimba FRSSAf, Dean Goldring, Rushdie Hendricks FRSSAf, Andrew McKechnie FRSSAf, and Reuben Pfukwa.

The Society President and Vice President inducted the following Fellows: Adrienne Edkins ('24), Willem-Arjen van Otterlo ('24), André Weideman ('24), Priscilla Baker ('25), Ding-Geng Chen ('25), Baves Kana ('25), Claire Spottiswoode ('25), Özlem Tastan Bishop ('25), Marcello Vichi ('25), and Patrick Woudt ('25).

Dean Goldring toasted the Society and Rueben Pfukwa, the Country.



Inductees L-R: André Weideman, Lesley Cornish (President), Claire Spottiswoode, Adrienne Edkins, Priscilla Baker, Willem-Arjen van Otterlo, Marcello Vichi, Patrick Woudt, Baves Kana, Özlem Tastan Bishop, Ding-Geng Chen.



2025 **Marloth Medal** Awardee, Peter Vale (with Lesley Cornish and Kathy Myburgh), gave a philosophical speech of his life's journey as a social scientist and activist.



2025 **John F W Herschel Medal** Awardee, Sally Archibald, presented an interesting account of a recent visit to the tropical rainforest in central Africa, and her plans for future research projects.

*It is a matter of great regret that Prof. Bond passed away on 04 December 2025



Inductee Özlem Tastan Bishop with Councillor Dean Goldring



Councillor Rushdie Hendricks



Winifred and William Bond



Inductee Patrick Woudt with Adam de Beer



Medal Awardee Peter Vale with Richard Kramer



Inductees and guests enjoying the luncheon

General News Items

Royal Society benefactors

By Prof. Em. Jane Carruthers FRSSAf

Many academic and scientific societies rely on donations and bequests to conduct or enhance their activities. The Royal Societies that still exist within the Commonwealth, including our own, the Royal Society of South Africa (founded 1908), do not have any state subsidy as this ensures total independence from government agendas. Therefore, the work of our Society, and the *Transactions* that it publishes, as well as the occasional workshop or conference, are funded by annual subscriptions from Fellows and Members. The Claude Leon Foundation has been the generous sponsor of post-doctoral positions and the school essay competition, but there have not been many partnerships of this kind.

However, we have been fortunate to have received a small number of bequests from Fellows over the years, and we felt that the time had come to acknowledge them publicly and record the Society's deep gratitude to these benefactors, some of whose money came at critical times when the Society was badly in need in order to survive.

There have been five in all:

Rudolf Marloth (1941) - £200 (equivalent in purchasing power today of about £12,500)

Raimund Marloth (1985) - R53 000 (equivalent to c. R1,1m today)

Phillip Tobias (2012) - R3 000 (equivalent to c. R6 000 today)

Frederic Bell (2015) - R390 000 (equivalent to c. R640 000 today)

Brian Warner (2025) - R50 000

(Monies received at the dates above)

The first two bequests came from the Marloths – father and son, H.W. Rudolf Marloth and Raimund H. Marloth, coincidentally also the only father and son to have been president of the South African Association for the Advancement of Science (S2A3).

HERMANN WILHELM RUDOLF MARLOTH (1855-1931)



Rudolf Marloth was the greatest pioneer botanist of South Africa. An émigré from Germany in 1883, he became a member of the South African Philosophical Society (founded in 1877) and served as President from 1893 to 1895. In 1908, he was one of the original Fellows of its successor, the Royal Society of South Africa.

Born in Lübben in eastern Germany, Marloth trained as a pharmacist, and when he arrived in Cape Town, he worked as a pharmacist and an analytical chemist. He gained an additional M.A. degree in 1888 from the University of the Cape of Good Hope and was appointed to the staff of Victoria College and then the Government School of Agriculture and Viticulture in Stellenbosch. His abiding love, however, was botany. Entranced by Cape vegetation, he started a personal herbarium, travelling into remote parts of the region on collecting expeditions.

More than a collector or taxonomist, he was an early proponent of the theory of biomes and distinct floral regions and was, in addition, an ecologist interested in the relationship between plant communities and their environments. His most famous legacies are the multi-volume *Flora of South Africa* (1913-1932), and his vast herbarium collection, documents, and photographic negatives, which are housed at the University of Stellenbosch and elsewhere.

Royal Society benefactors, continued

RAIMUND HILMAR MARLOTH (1904-1983)



Raimund, the youngest of the three sons of Rudolf and his wife Mary van Wyk, was elected a Fellow of the Society in 1957 and died, a widower, in Nelspruit. Like his father, also a scientist, Raimund became a pomologist and spent almost all his working life at the Nelspruit Subtropical Horticultural Research Station, established in 1926. Initially a researcher, Marloth rose to become Director of what became a large facility, conducting fundamental research into the science and economic potential of citrus and other subtropical fruits, bearing in mind the need to develop the industry and foster exports. In his research, Marloth worked closely with scientists from California, and his many publications on citrus and other fruit diseases, as well as the introduction of new economically viable crops such as mangoes and dates, made note-worthy contributions.

The research in Nelspruit during the period that Marloth was there had a significant impact on citrus and other subtropical fruit. Marloth was also interested in the history of agriculture in South Africa and published on this topic in various journals. Highly regarded internationally, Marloth was selected by the Food and Agriculture Organization of the United Nations in the early 1950s to advise the country of Yugoslavia on subtropical fruit growing.

PHILLIP VALLENTINE TOBIAS (1925-2012)



Phillip V. Tobias, Professor Emeritus at the University of the Witwatersrand (Wits), was a world-renowned palaeoanthropologist and well-known anti-apartheid activist. He obtained his medical degree and Ph.D. from Wits and, in 1959, became Professor and Head of the Department of Anatomy and Human Biology there. Although best known for his work in Sterkfontein, Tobias was involved in many major hominin fossil sites in southern and East Africa, and he described fossils from many parts of the world. He also studied the human biology of the San, the BaTsonga, and other African communities.

Elected a Fellow of the Royal Society of South Africa in 1960, Tobias was President from 1970 to 1972 and recipient of the John F.W. Herschel Medal in 1990. He was recognised by many awards, among them the Order of Meritorious Service (Gold Class), the Order of the Southern Cross (Class II), the Walter Sisulu Special Contribution Award, and the South Africa Medal. He was elected a Fellow of the Royal Society of London in 1996, received the Charles Darwin Lifetime Achievement Award of the American Association of Physical Anthropologists, elected a Foreign Associate of the National Academy of Sciences, and a member of both the American Academy of Arts and Sciences and the American Philosophical Society.

Royal Society benefactors, continued

FREDERIC GLADSTONE BELL (1938-2014)



One of South Africa's most productive geologists with wide interests, Fred Bell made major contributions to his discipline. An international figure, he wrote a very large number of influential books (20) and papers (c. 250). Bell's father was a coal miner in Northumberland, and with the aid of scholarships, Bell graduated with a B.Sc. and M.Sc. (in petrology) from the University of Durham and in 1974 Ph.D. from Sheffield. Bell held posts at various universities and technical institutions in the United Kingdom before, in 1989, becoming Professor and Head of the Department of Geology at the University of Natal. There, he vitalised engineering geology and was a talented teacher, initiating many innovative courses.

His research areas were wide, including ground instability, subsidence, acid mine drainage, and geohazards. He worked with the South African Department of Water Affairs and Forestry and the U.K. National Environment Research Council as well as with many large international mining houses.

He was elected a Fellow of the Royal Society of South Africa in 1999. Recognition came from many other scientific societies, and he received the Cokes Medal from the Geological Society, London (1999), as well as the Holdredge Award from the US Association of Environmental and Engineering Geologists (2000, 2004). He retired in 2001 and died at his home in Nottinghamshire.

BRIAN WARNER (1939-2023)



Born in Sussex, England, Brian Warner was influenced by the charismatic amateur astronomer Patrick Moore (1923-2012) who lived nearby. He attended University College London for a degree in astronomy, publishing two papers even before his graduation. He obtained his Ph.D. in 1964. As part of his research, Warner visited South Africa to use the Radcliffe Observatory in Waterkloof, Pretoria. His lifelong research included cataclysmic variable and binary stars, pulsars and degenerate stars. He worked at the University of Texas at Austin before being appointed the first Professor of Astronomy at UCT and head of department in 1972. He retired as Emeritus Distinguished Professor of Natural Philosophy in 1999 but undertook research for many years thereafter.

Elected a Fellow of the Royal Society of South Africa in 1976, he served as President from 1981 to 1983 and received the John F.W. Herschel Medal in 1988. Warner gained many international and local awards as well as an Honorary Doctorate from UCT in 2009. He was the author or co-author of many books and papers on astronomy as well as on the history of astronomy in South Africa. In addition, he was extremely knowledgeable about the flora of the Cape, and he published two volumes of poetry.

General Announcements

The Royal Society of South Africa congratulates the following Members and Fellows who were recently elected to the Academy of Science of South Africa:

Prof. Faadiel Essop FRSSAf, Prof. Jennifer Fitchett FRSSAf, Prof. Martin Hill FRSSAf, Prof. Vincent Nyamori FRSSAf, Prof. Abiodun Salawu MRSSAf, Prof. Addmore Shonhai FRSSAf, Prof. Özlem Tastan Bishop FRSSAf, and Prof. Brett Pletschke MRSSAf



Change in the RSSAf Office: having served the Society as Office Manager from 2006 to 2018 and from 2022 to 2025 with great dedication, Sandra de Villiers-Soltynski (right) has decided to step down. Dr Gudrun Oberprieler has taken over from her on 1 November 2025.

Transactions of the Royal Society of South Africa: Editor's Notes

Please note that access to the journal is free to all Fellows and Members of the RSSAf.

The Editor also welcomes any thoughts/suggestions, ideas for special issues, and opportunities for us to advertise the journal more widely and improve the offerings. **Please email the Editor directly: hilt@ukzn.ac.za**

Trevor Hill, FRSSAf

Editor-in-Chief

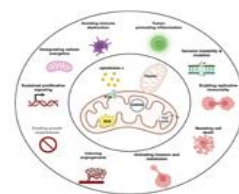
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A brief addendum to a historical note in the August 2025 newsletter

An interesting historical note by Prof. Carruthers deals in detail with the harmful effects of the introduction of invasive plant and animal species into vulnerable natural eco-systems, in particular species such as rainbow trout for recreational purposes [1]. Her article covers, in some detail, the role of the Department of Inland Fisheries of the Cape Province (which then comprised all land south of the Orange River and to the east as far as Swartberg), later absorbed into the newly created Department of Nature Conservation, of both of which my late father, Dr. Douglas Hey, was Director from 1942-1979. My father's role in promoting the cultivation and propagation of rainbow trout for recreational purposes is described, and criticized from the modern conservation perspective, with a passing mention of my grandfather, whose book on the trout fishing [2] in due course became a 'classic' in the angling community.

While this critique has undoubted merit with the benefit of hindsight, it presents a rather limited perspective of the activities of these Departments of the Cape Provincial Administration, perhaps leading the reader to overlook other aspects of the work, of importance in relation to aquatic ecosystems. My father's autobiography [3] describes, for instance, such topics as the experimental use of fish for the control of pests and disease, in particular the control of bilharzia. Perhaps the most important contribution of the Department of Inland Fisheries was the research carried out from 1936 onwards into the extent of pollution of our rivers and estuaries, which led to the promulgation of the first legislation in 1947 to protect aquatic systems from "the discharge into an inland water of any substance likely to be injurious to aquatic life" ([3], p. 71). Until then, the discharge of raw industrial effluent into numerous rivers was taking place on an increasing scale, to the detriment of all aquatic species. A research spell at the University of Louvain helped greatly in the development of a biological method of classifying polluted waters. The battles with industry were not won, however, overnight.

My father describes the battle to establish the importance of conserving nature and the environment in the 'early days' as a "long, uphill struggle" ([3], p. 74), to which most of his book is devoted. He always tried to maintain a balanced approach to the task of conservation, being critical of some activities involving the removal of long-established alien species which posed no threat whatever to the natural environment, for example the unnecessary felling of the weeping willow (*salix babylonica*) in parts of the Orange Free State where no 'native' species could thrive. His final chapter (*quo vadimus?*) is a retrospective tinged with sadness at the continued and accelerating deterioration of the natural world and the rapidly increasing extinction of plant and animal species, ending with the following words: "My generation launched and consolidated the conservation movement in all its facets. It now behoves the next generation to take up and carry the baton forward into the future, and I wish them strength, determination and success in this challenging task ([3], p. 278).

[1] Carruthers, J. *Historical Note: The Question of Trout: Conservation Science and Exotic Species* Newsletter of the Royal Society of South Africa, pp. 9-11, August 2025.

[2] Hey, S. A. *The Rapture of the River: The Autobiography of a South African Fisherman* (A. A. Balkema, Cape Town, 1957).

[3] Hey, D. *A Nature Conservationist looks back* (Cape Nature Conservation, 1995)

J. D. Hey, MRSSAf, November 2025.

Historical Note

Lester Charles King (1907-1989) and South African Geomorphology

From its inception, the Royal Society of South Africa has been blessed with an unusually rich variety of creative and talented scientists among its Fellows – people who were innovative theorists and thinkers and whose influence extended far beyond our borders. Among our most eminent early geomorphologists – and one of the most influential of the 20th century – was Lester Charles King, whose contribution has been enormous. It has been argued that South Africa holds an important place in the development of geomorphology because of the work of Lester King.



Born in London in 1907, King immigrated to New Zealand as a young man, where he trained as a teacher. Inspired by Sir Charles Cotton, the notable New Zealand geomorphologist, he obtained his B.Sc. (1928) and M.Sc. (1930) from the University of New Zealand. Attracted by the offer of a lecturing post in geology at Natal University College (N.U.C.) in Pietermaritzburg, he immigrated once again. In 1936, he was awarded a PhD from the University of South Africa (N.U.C., not being a full university at that time), and the University of New Zealand bestowed on him a DSc three years later. King became Professor of Geology at N.U.C. in 1946, founding the Department of Geology and Mineralogy in Durban in 1948. He remained in Durban when N.U.C. became a full university in 1949, and retired in 1973, holding the position of Emeritus Professor until his death. By all accounts, he was an excellent and interesting lecturer who stimulated students to enter the field and was an inspiration to many geologists and geomorphologists, both students and colleagues.

Perhaps unusually, King was attracted by topics both huge – continental drift (influenced by Alex du Toit), the morphology of the earth – and small – the Natal monocline, the Cango and Makapan caves. He travelled widely in southern Africa, and also in South America, Australia, and elsewhere. He went to Antarctica to study the geology; he was part of the South African Antarctic Research Committee, and was a participant, in 1963, in the first flight from Cape Town to Antarctica together with renowned American newsman, Lowell Thomas.

King's field knowledge was broad, and his scientific interests were wide. He was President of both the South African Geographical Society (1943) and the Geological Society of South Africa (1946). He was elected a Fellow of the Royal Society of South Africa in 1950. Many international honours and awards came his way, including the Patrons' Medal of the Royal Geographical Society. He was a fluent and productive writer who produced a wealth of publications, many of which were translated.

In reviewing *Southern African Geomorphology: Recent Trends and New Directions*, edited by Peter Holmes and Michael Meadows (2012), University of British Columbia environmental geographer Graeme Wynn described how geomorphology gained autonomy as geology began to focus on stratigraphy and palaeontology, while physical geography (later physiography or geomorphology) emerged as the study of landforms. American geologist William Morris Davis, an early synthesiser, introduced the compelling notion of the 'Geographical Cycle' (1899) that foretold a standard sequence of landscape change. He argued that there was a cycle beginning with land uplift that was followed over millennia by its transformation. Through erosion, mountains were flattened into hills, valleys, and broadening plains. However, in the earlier part of the 20th century, some geomorphologists, most importantly among them Lester King, considered this formula afresh. King produced a sustained counterargument in his book *South African Scenery: A Textbook of Geomorphology* (1942, 1951). He codified his thinking in a long article titled 'Canons of landscape evolution' in the *Bulletin of the Geological Society of America* in 1953.

Historical Note continued

A decade later, King's magnum opus appeared: *Morphology of the Earth* (1962). King took issue with Davis, even referring to his immutable cycle of transformation as a 'negative and obliterating conception resulting from cerebral analysis rather than from observation'. He contended that it had produced 'sterility in geomorphic thought and retarded progress in the subject severely'. Influenced by his observations of the South African landscape, King insisted that slopes and scarp-faces retreated parallel to themselves, a process known as parallel scarp retreat (see image below). According to King, Davis's postulation of a continuous lowering of slopes only happened in certain cases and was not the normal model. Some of King's ideas sparked fierce debate, and his pediplanation hypothesis has today fallen out of favour, together with all geomorphic cycles.

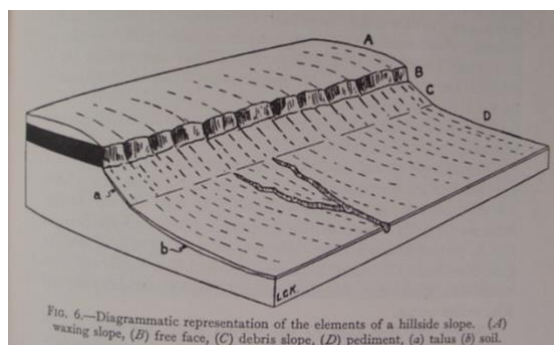


FIG. 6.—Diagrammatic representation of the elements of a hillside slope. (A) waxing slope, (B) free face, (C) debris slope, (D) pediment, (a) talus (b) soil.

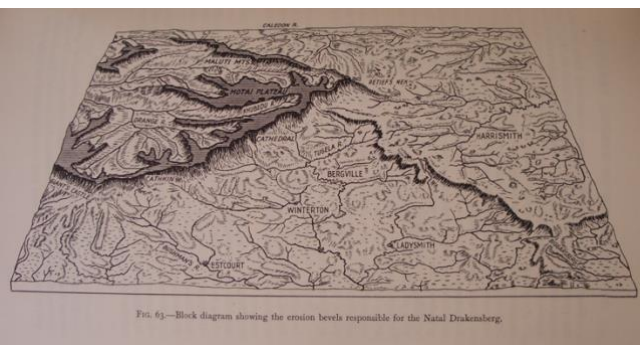


FIG. 63.—Block diagram showing the erosion levels responsible for the Natal Drakensberg.

King lived during an exciting time in South African geology. He knew Alexander Logie du Toit (1878-1948), probably South Africa's most renowned geologist. King's imagination was also captured by the emerging ideas around continental drift and plate tectonics that had first been given currency by Alfred Wegener (1880-1930) and that had been taken further by Du Toit, who proved it geologically. King lectured on continental drift at a number of universities in the USA during a tour in 1958, while he also advocated the theory of an expanding Earth, an idea then still radical. Unlike Du Toit, who died in 1948, King was able to capitalise on the later upsurge of respectability of, and accumulating data about, both plate tectonics and expansion in the 1960s and 1970s. His book, with its explanatory title *Wandering Continents and Spreading Sea Floors on an Expanding Earth* (1983), was extremely successful.

King published some of his work in the *Transactions of the Royal Society of South Africa*, including 'The geology of the Makapan and other caves' (33 (1), 1951) and 'The geology of the Cango Caves, Oudtshoorn, C.P.' (33 (4), 1951). He also published articles on Zululand and the KwaZulu-Natal coast in other journals, as well as a book, *The Natal Monocline: Explaining the Origin and Scenery of Natal, South Africa* (1972, 1982).

Many people considered King to be a brilliant intellectual; in addition, he was a fearless rebel. He made a great mark on the understanding of the geomorphology of the planet generally and of our continent and country in particular. According to some accounts, he may have become authoritative in his older age (as many do), but he never hesitated to revise his theories in the light of later information and to make a scholarly contribution wherever he could.

Jane Carruthers FRSSAf

Personal Perspectives

The study of celestial objects has been around for as long as humanity has been able to document it. The Babylonians, Egyptians, and Greeks were the pioneers of early models of the cosmos – intricately tracking the movement of the stars and planets in the night sky. The stars were used to navigate land and sea, used to determine what time of year it was and document important phenomena – for example, the ancient Egyptians used Spodet (which we now call Sirius, the brightest star in our night sky, in the constellation Canis Major, approximately 8.6 lights year away from Earth) to track the annual flooding of the Nile. Beyond a natural occurrence, it also held great cultural and religious significance – Spodet was a divine manifestation, connected to Isis and the cyclical death and rebirth of Osiris.

Closer to home, the same rings true. Many indigenous South African cultures made use of the night sky in a similar way. For the Khoi people, the night sky played a crucial role in their understanding of time, seasons, and the natural world – helping them know when to hunt, gather, or move livestock. Constellations were seen as animals, people, and everyday objects, and these stories were passed down through generations. This is where it also started for me, a descendant of the Nama people. Visits to grandmother in Steinkopf would end in balmy summer evenings on the stoep, recounting stories from her father about the !Khunuseti, the daughters of the sky god, Tsui||Goab. Legend has it the !Khunuseti told their husband (represented by the bright orange-red giant star Aldebaran) to hunt three zebras (the stars of Orion's Belt). He missed the shot with the only arrow he took with him (Orion's Sword) and was unable to retrieve it because the zebras were being watched by a fierce lion (the massive, red supergiant star Betelgeuse).

An always prominent interest stemming from childhood tales and my curiosity as a scientist led me down the path of amateur astrophotography in adulthood. While initially mainly the work of professional astronomers, advances in modern technology led to the booming of the hobby of astrophotography. The setup is relatively simple – a lens or telescope, an imaging device capable of long exposure, and a way to accurately track the movement of stars. After collecting image data for hours, the resulting images are stacked and edited in the imaging software of your choice.



My telescope configuration – a Meade 80mm refractor telescope and Canon DSLR on top of a SkyWatcher Az-GTI tracking mount, controlled by a smartphone app or via laptop

The Southern Hemisphere sky is filled with beautiful and interesting deep sky targets, from bright and intricate nebulae to distant galaxies. Here are some of the objects I've captured from my backyard in Cape Town:



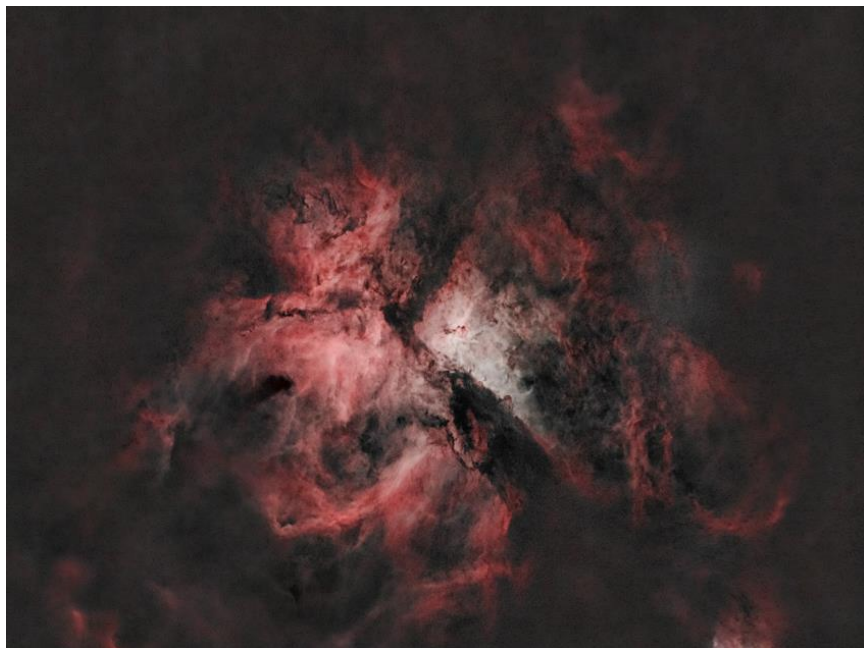
The Horse Head Nebula (IC 434) in the constellation Orion: a dark nebula approximately 1,375 light-years from Earth. Located south of Alnitak (the easternmost star of Orion's Belt). The red colour originates from ionised Hydrogen gas caused by nearby Sigma Orionis.



The Helix Nebula (NGC 7293) in the constellation Aquarius: a planetary nebula approximately 655 light-years from Earth. Planetary nebulae form when an intermediate to low-mass star sheds its outer layers of gas and dust into space, enclosing the white dwarf core in the middle.



The Great Orion Nebula (Messier 42) in the constellation Orion: a diffuse nebula situated south of Orion's Belt, approximately 1,344 light-years away from Earth. The closest star-forming region it's visible to the naked eye even in areas affected by light pollution.



The Carina Nebula (NGC 3372) in the constellation Carina: a stellar nursery approximately 8,500 light-years from Earth. Visible only in the Southern Hemisphere, it's known for its intense star formation and powerful stellar winds.

Astrophotography, and at its core, astronomy, is not only a fun hobby, but its reliance on imaging, observation, and data analysis forms part of my daily techniques as a biotechnologist. Employing systems thinking helps with studying complex biological systems, including ecosystems and metabolomic systems. Perhaps from a wider perspective, it can help remind us that life on Earth is part of the much broader universe, which helps to spark curiosity and innovative thinking in research. There's much left to be discovered, but much more so out in the cosmos.

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