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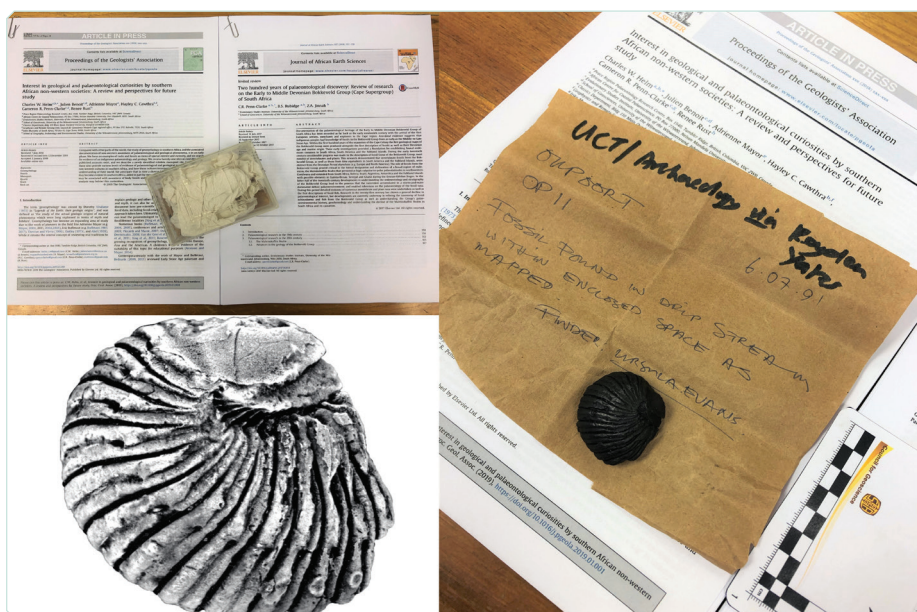
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The weird and wonderful beasts of the Bellville palaeontological collection: reviving this critically important collection of international cultural and scientific importance



Specimen GSB472/473, the famous 400-million-year-old *Burmeisteria* trilobite fossil that was found in the context of a 50–40-thousand-year-old Later Stone Age archaeological site in the Cederberg.

The palaeontological collection at the Bellville regional office of the Council for Geoscience (CGS) is perhaps one of the largest and most diverse collections of this type in Africa to span the Neoproterozoic–Palaeozoic (~ 600–350 Ma) time. Fossils in this collection are crucial to our understanding of the rise and evolution of among the earliest known animals on Earth, as

well as that of long-term environmental and ecological change from a uniquely southern African perspective. Perhaps most important is the cultural significance of this collection of South African fossils. As with all fossils from South Africa, these diverse fossil specimens form part of the National Estate of our country and identify our Nation, speaking to our deep-time diversity.

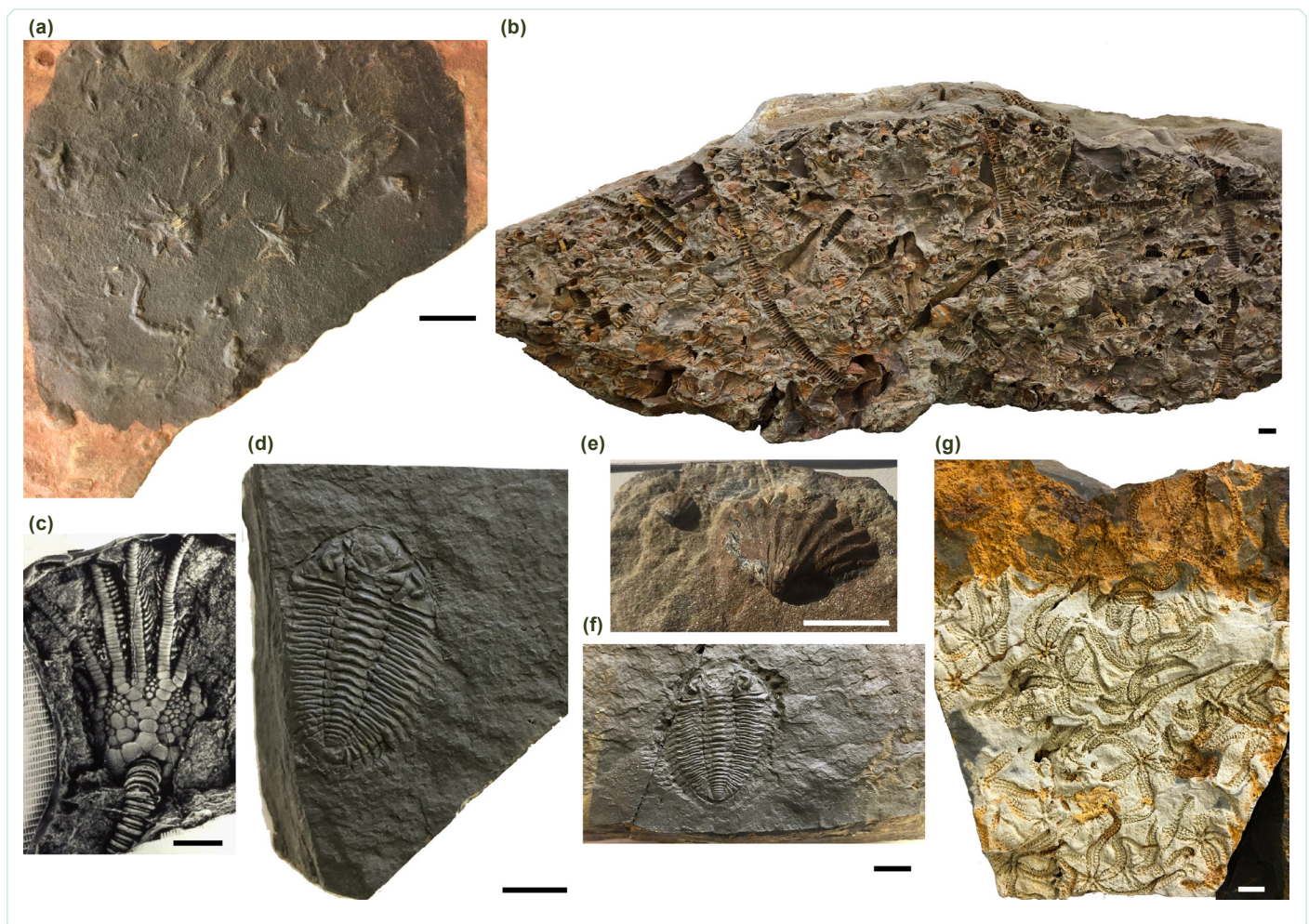
The 400-million-year-old trilobite fossil which was recently (re-)discovered in the Bellville palaeontological collection is perhaps one of the most culturally significant palaeontological specimens from South Africa. This particular fossil was collected over 30 years ago by an archaeological team working in the Cederberg who found it (along with ochre and quartz crystals) in the context of a 50–40-thousand-year-old Later Stone Age archaeological site providing evidence of human occupation. Earlier, it was thought that this particular fossil had been lost until it was rediscovered earlier last year in the Bellville collection. What makes this seemingly unassuming fossil so significant is that it provides among the earliest known evidence of an interest in fossils by man! The fact that this site was located over 10 km away from the nearest rocks hosting some of these fossils means that its collector had taken

great care in removing the surrounding rock from the fossil and had carried it to the site where it was found. The collector had taken more care to store the fossil along with the ochre and crystals. Clearly, something about this fossil resonated with him/her. Was it religious significance? Cultural significance? Or, was it just sheer curiosity? We will never know for certain, but what we can assume is that this individual may be considered Africa's (or the world's) first palaeontologist.

Other important and ongoing research on specimens in the Bellville collection includes studies on unique 450–380-million-year-old fossil assemblages, many of which are type specimens known only from single specimens. Among the many important discoveries being revealed by research teams include evidence of life moving

onto land as well as the recognition of several extinction events, all of which were previously unknown from the Ordovician and Devonian periods of South Africa.

Further landmark discoveries await the shelves and boxes of the Bellville palaeontological collection with a concerted investment by the CGS in reviving these collections. Two palaeontology internship students, Ms Samukelisiwe Mtshali and Mr Louis Jonk, have recently been appointed to the Bellville office to assist in the curation of these collections as part of the CGS mandate to safeguard the geoheritage of the country. Both Ms Mtshali and Mr Jonk have backgrounds in geology, palaeontology and archaeology and extensive experience in curatorial assistance, having previously worked on palaeontology and geology collections at



A selection of Devonian-age (~400–385-million-year-old) fossils from the Bellville palaeontological collection. (a) Fossil starfish burrows of *Asteracites*. (b) Shell hash bed (or coquinite) filled with crinoid, brachiopod, bivalve and trilobite fragments collected during a major storm. (c) The crinoid *Ophiocrinus*. (d) The trilobite *Metacryphaeus*. (e) The brachiopods *Australocoelia* and *Derbyina*. (f) The trilobite *Eldredgeia*. (g) A collection of ophiuroid (brittle starfish) fossils. Scale = 1 cm.



The new palaeontology interns in action in the field. Mr Louis Jonk, posing with a rhizolith (fossil root cast) and Ms Samukelisiwe Mtshali with a fossil tree stump.

the Ditsong Natural History Museum and the Iziko South African Museum. They are welcomed into the CGS family and with their efforts and expertise new life will be breathed into the internationally significant CGS collection.

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**Additional information on these discoveries and related research can be found at Dr Penn-Clarke's ResearchGate account: https://www.researchgate.net/profile/Cameron_Penn-Clarke2*

New manager for the Water and Environment Unit to promote excellence in the field of geoscience

Thakane Ntholi was born in Leribe and grew up in Thaba Nchu in the Free State Province. She started her school career at St Augustine's Primary School and later moved to Tlotlanang Combined School where she completed her matric. Since her schooling years, Thakane has had a passion for science and English literature. She alternated her time between scientific and writing/public speaking engagements and competitions. After matric, she enrolled at the University of Cape Town to pursue her tertiary education. In her first year, she was listed on the Dean's Merit list and was awarded a partial scholarship for the year. She later obtained a BSc in Geology and Chemistry and a BSc Hons (Geology) in

the subsequent year. In 2010, Thakane joined the AEON research group and completed her MSc (Geology) under the supervision of Prof. Maarten de Wit. In 2013, AEON moved to Nelson Mandela University where Thakane registered for a PhD (Geology) and graduated in 2017 still under the supervision of Prof. de Wit.

Thakane is fascinated by earth systems and her passion is to find a balance between exploiting natural resources and preserving the environment. Her belief is that this can be achieved through multidisciplinary earth stewardship and the smart implementation of technology. Her work has focussed primarily on the



Thakane Ntholi, Manager: Water and Environment

water, energy and environment nexus in mining.

Thakane joined the Council for Geoscience (CGS) in 2016. She was drawn to the organisation by its commitment to producing good-quality geological data and its ability to develop diverse, yet relevant, geoscience projects. Since joining the CGS, Thakane has embarked on a rapid growth path in the areas of research, science and management. She hopes to contribute to the growth of the

organisation and to promote excellence in the field of science. In the field of water and environment, her hope is to enable the development of South African solutions by local scientists.

When she is not working on scientific projects, Thakane is pursuing projects for science education. She has worked with various departments and research organisations to coach scientists on how to communicate their work to the general public. She also works with various groups on educating school

children about the geosciences and the potential careers in this field of study. She is passionate about the development of young people and demonstrating that, with hard work and support, much can be achieved.

Thakane is a keen traveller and an avid reader. In her free time, she spends time behind and in front of the camera. She loves taking photographs and recording videos on various subjects. She also enjoys trying various sporting and recreational activities.

Erosion in the Anthropocene, Mthatha, Eastern Cape

Dispersive colluvial and pedogenic sediments of the Masotcheni Formation mantling valley slopes of the eastern hinterland of South Africa near Mthatha are susceptible to widespread erosive gullying. These erosional gullies, locally known as *dongas*, form as a result of the complex interplay between regional and locally driven climate fluctuations and anthropogenic influences. Erosive gullying has a substantial impact on the biophysical viability of land, negatively impacting a region's biodiversity, food security, migration patterns, population safety and sustainability in the long term. Scientific study into the scope, severity, mechanisms and rate of gully expansion in relation to driving factors aims to guide stakeholders in making informed decisions on future infrastructure development, land use planning and environmental management.

Digital mapping of erosional features (gullies, rills and sheet erosion) has enabled the creation of an erosion inventory map for the areas surrounding Mthatha. The inventory reveals that 2,3% or 2 579 ha of the study area has been affected by erosion. Additional multitemporal mapping of 25 gullies over a period of 81 years (1938–2019) has revealed an average erosional rate of $0,61 \text{ m/y}^{-1}$, with an average lateral gully erosion rate of $0,2 \text{ m/y}^{-1}$ and a far more aggressive headward erosion rate

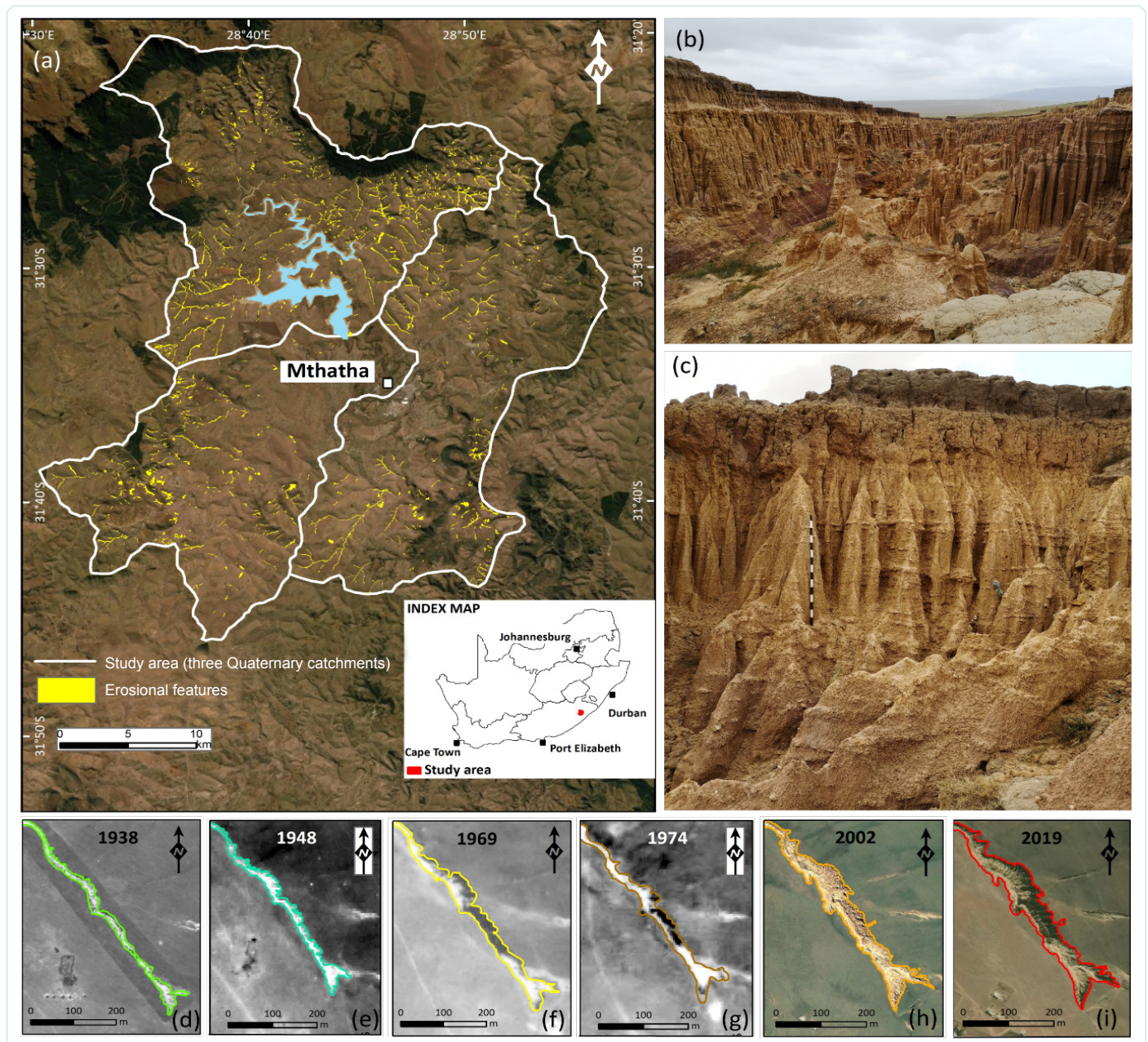
of $1,03 \text{ m/y}^{-1}$. Erosional features show an average annual increase of 2% in their areal extent, doubling in size every 50 years.

Analysis into the evolution of a large erosional feature observed just 6 km north of Mthatha, the Ngwevana Gully, between 1938 and 2019, revealed an aerial expansion from $8\,968 \text{ m}^2$ (0,8968 ha) to $34\,680 \text{ m}^2$ (3,468 ha) or 386% growth over a timeframe of just 81 years. The gully shows an average expansion rate of $0,58 \text{ m/y}^{-1}$, with a faster average headward erosion rate of $0,73 \text{ m/y}^{-1}$ in comparison to its average lateral expansion rate of $0,43 \text{ m/y}^{-1}$.

Erosion rate variations during the Anthropocene in response to climate fluctuations, extreme weather events and anthropogenic influences are clearly demarcated for the Mthatha area. An analysis of the climate patterns and the unique history of human settlement and land use activities revealed that large-scale flooding events in 1970 and 1971 during a drier climate cycle caused the average annual percentage growth rate of the Ngwevana Gully to increase from 1,5% to 2,3% between 1969 and 1974. Excessive rainfall also led to the opening of new post-flood erosional gullies noted in evaluations of historical imagery during the same period. Localised flooding during an ongoing

drought spanning more than five years saw average annual erosion growth rate percentages for the Ngwevana Donga increase from its lowest rate in 81 years of 0,69% in 2013 to 0,96% in 2019.

Fieldwork identified the physical mechanisms by which erosional features expand in what can be described as a pseudo-karst topography setting which includes piping (underground erosion), mass wasting, rim and roof collapse. The advanced state of gully expansion is further aided by erosive conditioning factors such as bedrock lithology, rock competency, topography, slope morphology and drainage densities. Improper agriculture practices, inappropriate land use and haphazard settlement and infrastructure expansion within communally owned areas have further accelerated erosion. Large areas of communal land show signs of overgrazing. Vegetation cover is a key factor in binding soil particles and controlling surface runoff and erosion rates. Grass is often continually reduced to ground level, trampled and left barren, making a landscape with already pre-dispositioned dispersive soils extremely susceptible to erosion. Anthropogenic-driven changes to the rates of erosion can be traced back to the region's complex pattern of human settlement and political and socio-economic history. The historical "native lands", Bantustans



(a) Gully inventory map for Mthatha and surrounds. (b and c) The Ngwevana Gully near Mthatha eroded into sediments of the Masotcheni Formation. (d-i) Georectified historical aerial photography and imagery of the Ngwevana Gully.

or homeland areas were created as far back as 1913 and saw the relocation of black South Africans to areas such as the former Transkei. By 1950, population densities in the area started to rise and much of the available land was put under plough. However, a shift in land use away from large-scale cultivation owing to an increased need from government for migrant labour in urban areas, mines and elsewhere, became a large financial lure in times when drought conditions had led to a reduction in irrigation prospects. Consequently, between 1965 and 1986, many cultivated fields were

abandoned in favour of livestock and local subsistence farming and intensive intercropping in fenced gardens next to homes. Abandoned large-scale fields made the land very susceptible to erosion from surface runoff. More recently, data reflect an increase in the average annual erosion percentage growth rate between 1995 and 2002 from 1.41% to 2.83% and, again, in 2005 to 2009, from 0.65% to 1.67% for the Ngwevana Gully. The increase is attributed less to climate fluctuations but rather to rapid population growth, with households, dwellings and livestock

numbers exerting pressure on land and forcing erosion rates upwards.

This research is ongoing and being undertaken in conjunction with the Nelson Mandela University and the African Earth Observatory Network.

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New appointments in the Office of the CEO

The Council for Geoscience (CGS) is delighted to welcome Ané-a Harding to the position of Risk Manager, Mbuyiseni Ngcobo as a Stakeholder Relations Specialist, Angel Monnakgotla as a Stakeholder Relations Officer and Lerato Maibelo as the Personal Assistant to the CEO.

Ané-a Harding

Ané-a Harding was born and raised in the goldfields in Welkom before moving to Bloemfontein to complete her last two years of school at Sentraal High School. After initially wanting to study medicine, she started her studies in BSc Natural Sciences at the University of the Free State, but made a dramatic change to law the following year. She completed her BLuris degree and started working at WesBank while studying part time towards her LLB degree. Originally, Ané-a wanted to become a corporate legal advisor, but life took her on a different route. She was transferred to Johannesburg in 2001 where she worked in many different departments and became interested in compliance. An opportunity presented itself and she moved into a risk and compliance role in 2008. One year into the role

and it was clear that she had found her niche. As a risk manager, one has a unique opportunity to engage with all departments in order to appreciate the bigger picture.

Upon returning from maternity leave after the birth of her son, Marqus, who turns 11 this year, she moved into a purely operational risk management role. In this capacity, she compiled the first policy repository and started the process to standardise the structure and format of WesBank's policies. She enrolled for a two-year Enterprise Risk Management diploma at the University of Johannesburg. Then it became time to spread her wings and leave WesBank after 14 years. She joined the Gauteng Provincial Legislature as an Audit, Risk and Governance Compliance Officer in the newly established Risk Management Directorate. Here she could apply her mind to improve the terms of reference for various committees, while establishing the first regulatory universe, helping to develop the risk management policy and becoming involved with risk and fraud awareness initiatives. Ané-a joined Vodacom in 2014 as the Enterprise Risk Manager for South Africa. During this time, she improved the risk policy and framework, designed a risk management system and rolled out a risk champion programme as a result of her MCom in Applied Risk Management. She completed the first comprehensive risk culture survey at junior levels in the organisation. The risk champion project saw her conduct training to over 600 people in most of the Vodacom markets, which included Zambia, Mozambique and Lesotho. Last year she started her MBA through IIE Monash South Africa.

Ané-a is an associate member of the Institute of Risk Management South Africa (IRMSA) and was the runner-up in the category "Risk Specialist of the Year" in 2019 at the annual IRMSA awards. She enrolled to complete her Certified Risk Management Professional board exam in 2020. Although she does not spend nearly enough time on her

hobbies, she enjoys gardening, being outside in nature, craft needlework and making music. She loves travelling and being outdoors with her family.

Ané-a is very excited about the possibilities at the CGS in terms of risk management. She is a firm believer in making risk management practical and enjoys engaging with her colleagues to help them determine how they can apply risk management principles in their work situation. She believes risk management is a useful tool for achieving one's objectives. She will aim to improve the risk management policy and framework of the CGS and will assist the organisation to achieve ISO 9001 certification from a risk management perspective. Ané-a attributes her success in previous organisations to continual engagement with all stakeholders in all departments.

Mbuyiseni Ngcobo

Mbuyiseni Ngcobo grew up in a small village called KwaMafunze, east of Pietermaritzburg. He started his school career at Nkabini Primary School and completed his secondary school education at Langalakhe High School (a school named after his great-great-grandfather, iNkosi Langalakhe Ngcobo, for his contribution in the liberation movement). Mbuyiseni obtained a BTech degree in Public Relations Management in 2009 from the Cape Peninsula University of Technology (CPUT) in Cape Town. To advance his knowledge, Mbuyiseni completed a number of short courses such as Web Design (2012), Project Management (2015), Climate Change Science and Negotiations (2015) and Stakeholder Engagement for Effective Management (2018).

While studying for his undergraduate Diploma, he started working for Moving Tactics as a Sales Consultant where he was mainly responsible for the introduction of mobile banking and 3G technology. He then joined the publication industry as the Advertising



Ané-a Harding, Risk Manager

and Marketing Executive at MAGMedia Publishing and Wild Lemon Production, respectively, where he spent almost two years. He was then recruited by the Western Cape branch of the Deaf Federation of South Africa (DeafSA), where he established the Public Relations Department focussing on fundraising and lobbying. During his tenure at DeafSA, Mbuyiseni introduced skills development and capacity building initiatives for the deaf community.

In 2012, Mbuyiseni was placed in charge of the communications work stream of the Community Chest Western Cape where he contributed to the brand visibility of the organisation through different media platforms, including social media. He was involved in spearheading the Community Chest Twilight Team Run 2012, Carnival 2012 and other events which contributed to positioning the organisation in the donor funding space.

Mbuyiseni joined the South African National Energy Development Institute (SANEDI) in 2013 at a Stakeholder Engagement Analyst, a role that entailed, among others, engaging with a wide array of stakeholders at national, provincial and local levels, positioning the brand of SANEDI both internationally and locally and raising awareness about Carbon Capture



Mbuyiseni Ngcobo, Stakeholder Relations Specialist

and Storage (CCS) in general. In 2017, Mbuyiseni assumed the role of Acting Stakeholder Engagement Lead for the Pilot CO₂ Storage Project (PCSP) where he focussed on accelerating the implementation of the project. This task involved developing appropriate strategies/ plans, reporting and communicating complex messages to a wide variety of audiences in person, through written material and via websites. Furthermore, Mbuyiseni identified mechanisms and processes to promote enhanced levels of constructive stakeholder engagement as enshrined in the King III & IV Code of Governance principles. He presented oral papers in countries all over the world and contributed to a few technical publications.

Mbuyiseni joined the CGS as the Stakeholder Relations Specialist, a position entrusted with building and sustaining synergic relations with key stakeholders, including diplomacy, and creating a positive image for the organisation. He is committed to positioning the CGS as the go-to geoscience organisation in South Africa and increasing its brand visibility.

Mbuyiseni has served in several committees/forums: (i) *Energy Communicators' Forum* which deals with all communication and stakeholder engagement issues for State-Owned Entities under the Department of Mineral Resources and Energy; (ii) *SANEDI Stakeholder Engagement Sub-Committee*, (iii) *SANEDI Advisory/Steering Committee*, and (iv) *International Energy Agency on Greenhouse Gases (IEAGHG): Social Research Network*. He is a member of the Public Relations Institute of Southern Africa (PRISA) as a Chartered Public Relations Practitioner.

Running is Mbuyiseni's favourite hobby, followed by a love of nature and adventure. He enjoys football, travelling, reading about philosophical issues and helping others realise their full potential. Mbuyiseni is married and he and his wife are blessed with a beautiful daughter.



Angel Monnakgotla, Stakeholder Relations Officer

Angel Monnakgotla

Angel Thuli Monnakgotla, the youngest of five children, was born on 26 September 1984 in Orlando East, Soweto, a township in the southwest of Johannesburg. The township is known for the Hector Pieterse Museum and prominent political icons such as Nelson Mandela and Bishop Desmond Tutu who resided in Vilakazi Street in Orlando West.

From pre-school to Standard 2 (now Grade 4), Angel attended Thembalihle Lower Primary School. She continued her school career at E.W. Hobbs Primary School in Eldorado Park and matriculated at Topaz Secondary School in Lenasia. She completed her National Diploma in Public Relations Management at the University of Johannesburg in 2009. In 2014, Angel enrolled at Tshwane University of Technology where she obtained a BTech Degree in Public Relations Management. Her dissertation focussed on Izimbizo as an effective tool to communicate with communities. She completed a short course in effective stakeholder management at the University of Pretoria in March 2015.

Angel's first work experience was at the City of Johannesburg: Emergency Management Services in 2008 and 2009 where she worked as a Communications Intern. She

was recognised as the best intern/employee and received a certificate of appreciation from her employer for the best written case study. In 2010, Angel moved to Pretoria to work for the Special Investigating Unit as a Communications Assistant responsible for administration, project management, media relations and monitoring as well as managing the e-mail broadcaster and contributing towards the compilation of internal newsletters.

Angel moved to the Department of Justice and Constitutional Development where she was appointed as Senior Communications Officer in the Public Education and Communication Directorate. Her responsibilities included events coordination, management and stakeholder relations. She was fortunate to work with stakeholders at all levels and to maintain relationships with high-level governmental and political figures, members of the public, service providers and officials. She led the organisation, coordination and management of high-profile government events, for example:

- 20th Anniversary of the Constitution celebration in Sharpeville that was led by former President Jacob Zuma in 2016;
- Presidential Summit on Gender-Based Violence and Femicide in Tshwane in 2018;
- Official opening of the Booyens Magistrate Court in Johannesburg in 2019;
- Official launch of the Mpumalanga High Court in 2019.

Angel also championed the organisation of Departmental Budget Vote events in Parliament.

She joined the CGS in March 2020 where she has been appointed to the position of Stakeholder Relations Officer and her responsibility is to assist in rendering effective and efficient professional support in the design and implementation of the stakeholder relations work stream. Her

vision for this position is to build strong relationships with the stakeholders of the organisation in executing the mandate of the CGS.

Angel is married and has two beautiful children, a boy and girl. She is a member of a group in her neighbourhood called "Helping Hand" which consists of a group of women who support the poor. Back home in Soweto she helps elders and young girls in the community. As a young child Angel always wanted to be in the entertainment industry, performing as a theatre actress and dancer. Angel loves hiking, running and has a passion for music. As a child growing up in Soweto she was fascinated by the different cultures and language groups in the township. This inspired her to embrace the diverse cultures of the country and to speak many of the official languages of South Africa.

Lerato Maibelo

Lerato Maibelo was born in the rural area of Kalkfontein (Katjibane) in Mpumalanga. She completed her primary and secondary education at Katjibane Primary School and Makgoka High School in Polokwane. Lerato obtained her National Diploma in Public Management from the Tshwane University of Technology. Her childhood dream was to study Political Science and be actively involved in politics. She joined Electricity Distribution Industry Holdings (Pty) Ltd under the internship programme immediately after her graduation in 2006. After the completion of her internship programme, Lerato was appointed as a Project Coordinator in the legal division. It was not long before her career as an executive assistant within EDI Holdings began, where she worked with the CFO, Executive: Human Capital, Company Secretary and the Chairman of the Board until 2011. She joined the Department of Mineral Resources and Energy as an Executive Assistant in the Office of the Minister until the minister's term ended in 2014. She then took a sabbatical for two months and was offered a role at the Auditor-General of South Africa on a contract basis as an Executive Assistant to the National



Lerato Maibelo, Executive Personal Assistant

Leader. Shortly afterwards, Lerato was offered a permanent position under the new administration as a Personal Assistant in the Office of the Minister of Mineral Resources and Energy. In 2016, she was transferred to the Director: HRA&P in the position of Personal Assistant.

Lerato believes that with all the experience she has accumulated throughout the years as an Executive Assistant, and given that she has worked with various executives in different sectors, she should make an invaluable contribution to the CEO's office and to the CGS. Lerato understands the importance of her role in the organisation and will ensure that she applies her vast experience to running the office. She is looking forward to working with the team and learning as much as possible during her tenure at the CGS.

Outside the office, Lerato is passionate about cooking and is known as the Masterchef in her family. She also loves reading all sorts of books (from politics, fashion and adventure to romance). Her other hobbies include dancing, listening to music, community work and travelling. She is a family oriented person and believes that family is everything. She is the third born out of six in her family. She has a five year old son and enjoys spending time with her family.

Unlocking geological treasure through translation

The Communication and Stakeholder Relations Business Unit is undertaking, among other services, the translation of strategic documents for the benefit of various aspects of CGS operations. In particular, the unit is currently undertaking the translation into English of historical geoscientific reports in support of the integrated and multidisciplinary mapping programme of the organisation. The purpose of this initiative is to increase the accessibility of applicable information which has, thus far, been available only in Afrikaans.

In this regard, the Use of Official Languages Act, Act 12 of 2012 emphasises the need, among others, to facilitate equitable access to information in service of the needs of South Africans generally. The translation of strategically important historical geoscientific documents into English will hopefully contribute in large part to fulfilling this objective by increasing the number of readers to whom such research will become accessible.

The translation of documents that have, to date, been available only in Afrikaans will benefit geologists and other scientists, in the context of MTEF and other projects. Moreover, the project will contribute to making a repository of historical documents available to a wider audience within the scientific community locally and internationally.

The translations of reports and documents have largely followed the format and page numbering of the original documents, to facilitate cross-referencing and fact checking. After completion, these translations are verified by willing CGS experts to ensure their scientific accuracy. In this regard, Coenie de Beer, Pieter Bosch, Johann Neveling, Paul Macey and Nick Baglow have provided indispensable help.

Scientific findings in the historical documents have not been updated. Discussions are underway on how best

to deal with updates to outdated, even erroneous information. The translations endeavour, as far as possible, is to remain true to the idiom and content of the original documents.

It is hoped that, as this in-house translation service gains more traction among scientists, more requests for translations will be made. PDF copies of reviewed and translated documents are available from the library or from the Communication and Stakeholder Relations Unit.

Thus far, the following reports/ explanations and documents have been translated:

Theses

1. The carbonate rocks and iron formations of the Ghaap Group of the Transvaal Supergroup in the Northern Cape by NJ Beukes (PhD thesis)
2. The stratigraphy and structure of the Asbestos Hills Formation between Griquatown and Niekerkshoop with implications in respect of the crocidolite genesis by CLW du Plooy (MSc thesis)
3. A geotechnical study of the Damara orogeny in an area southeast of Karibib, South West Africa by GS de Kock (PhD thesis)
4. The geology and structure of the Levubu and Bandelierkop areas in the Northern Transvaal by MC du Toit (PhD thesis)
5. The geology of an area in the vicinity of Giyani, northeastern Transvaal, with reference to possible economic mineral deposits by MC Prinsloo (MSc thesis)
6. The geology of the Klein Letaba area, northeastern Transvaal with special reference to the granitic rocks by CJ Vorster (PhD thesis)

To date, the following geological explanations have been translated from Afrikaans. In time, the complete series of Afrikaans explanations will be translated into English.

Geological explanations (1:250 000)

1. Geology of the Williston area by JHA Viljoen (sheet 3120)
2. Geology of the Barberton area by F Walraven (sheet 2530)
3. Geology of the Britstown area by MC Prinsloo (sheet 3022)
4. Geology of the Kenhardt area by MJ Slabbert, HFG Moen and R Boelema (sheet 2920)
5. Geology of the Riversdale area by JA Malan, JHA Viljoen, HP Siegfried and H de V Wickens (sheet 3420)
6. Geology of the Victoria West area by FG le Roux and AW Keyser (sheet 3122)
7. Geology of the Kroonstad area by IC Schutte (sheet 2627)

Articles

- Stratigraphy and lithofacies of the Campbell Rand Subgroup of the Proterophitic Ghaap Group, Northern Cape by NJ Beukes (*Transactions of the Geological Society of South Africa*, 83 (1980), 141–170)
- Lithostratigraphic subdivision of the Schmidtsdrif Subgroup of the Ghaap Group in the Northern Cape by NJ Beukes (*Transactions of the Geological Society of South Africa*, 82 (1979), 313–327)

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PanAfGeo training: WP7-C3 Geoscientific Information Management

PanAfGeo supports the training of geoscientific staff from African Geological Surveys through the development of several training programmes. PanAfGeo is co-funded by the European Commission (Directorate-General of Development and International Cooperation) and by a consortium of 12 European Geological Surveys coordinated by the French Geological Survey (BRGM). The 7th training session on geoscientific information management took place at the Bellville regional office of the Council for Geoscience (CGS). WP7 — Geoscientific Information Management aims to improve the capabilities of staff employed by African Geological Surveys in the field of geoscience information management and related information technologies at an operational level, with adaptation to the local context and sustainability potential.

Nineteen trainees representing eleven countries participated in the two-week training session. The participating countries were South Africa, Malawi, Botswana, Nigeria, Liberia, Ethiopia, Ghana, Cameroon, Sudan, Uganda and Eritrea. The CGS was represented by Dr Chiedza Musekiwa, Haajierah Mosavel, Unathi Nondula,



Dr Chiedza Musekiwa (CGS), Yvan Assy and Bernard Bourguin (BRGM) presented training sessions on geoscientific information management.

Zininzi Philiso, Ntsako Mhlarhi and Makgari Sebesho.

During the training session, theoretical and practical components were coordinated and presented jointly by

the BRGM and CGS. Participants were trained in using GDM (Geological Data Management) software with emphasis on 3D modelling, geostatistics, interpolation techniques and grade calculation. Training concluded with “return to work plan” presentations by each participant, granting delegates an opportunity to present GDM within a project. Discussions involved methodologies, technical procedures, financial implications and milestones for each work plan.

Participants receiving their certificates of participation.



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Intellectual property (or IP) at the CGS

Logical semantics describes intellectual property as something that emanates from a person's intellect, i.e. the person's mental powers. This "something" is an idea expressed through writing, constructions, voice recordings, performances or some other material form.

In such a material form, the idea has an owner, is usable or applicable, attracts or invokes certain rights and may form the object of a deal or transaction. In such a material form, therefore, each idea becomes property.

The law and IP

As a science council, the Council for Geoscience (CGS) is regulated by the Intellectual Property Rights from Publicly Financed Research and Development Act No. 51 of 2008 (the IPR Act).

The IPR Act defines intellectual property as "any creation of the mind that is capable of being protected by law from use by any other person...and includes any rights in such creation, but excludes copyrighted works...".

South African legislation recognises four types of creations of the mind. These are inventions, trademarks, copyright works and designs. This article discusses inventions and trademarks as they are the most relevant creations from the perspective of the CGS as well as trade secrets regulated by South African common law.

i. New inventions

Inventions constitute technical solutions. New inventions are recognised by the Patents Act No. 57 of 1978, the Regulations thereof and the Patents Amendment Act No. 20 of 2005.

a. Patent rights

An invention that is new, inventive (i.e. non-obvious) and useful can be afforded a patent upon application. A patent is a bundle of rights to exclude unauthorised



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people from making, using, exercising, disposing or offering to dispose of or importing the invention or a product thereof. These rights may be offered for sale or lease, partially or wholly, to generate revenue for the CGS and for the inventors. Ultimately, these rights are offered for the purpose of diffusing the invention into the fabric of society to benefit ordinary South Africans.

b. Ownership within the CGS

Generally, any new invention made by an employee within the course and scope of his or her employment is owned by the employer. In our case, the CGS is the owner of such an invention. If the invention is patentable, the CGS is the applicant in the patent application to own the resulting patent.

c. Identifying a new invention at the CGS

New inventions may constitute any newly created or uniquely modified process, system, technique, formulation, apparatus, device or machine.

For example, let us assume that Ms X, a CGS employee, has developed a new technique of sampling rocks, having designed her own customised core sampler. She calls the core sampler "ExSamplR".

A CGS IP officer then helps her to conduct searches on the Internet and on free international online patent databases, such as the United States Patent Office

database, to find out if there is someone elsewhere who has done something similar. The officer concludes that ExSamplR is probably a new invention, recommending patent protection for the instrument. The CGS patents ExSamplR, commercialises it and accrues revenue from the invention.

d. Opportunities within the CGS

The CGS already has a patent with the number and title 2015/08887, Redox by In-Situ Ozonation (ROBIO). The technology of this patent is part of an ongoing project.

One of the current CGS projects focusses on the use of Artificial Intelligence to provide solutions in the water sector. This project automates the process of identification of optimum parameters for an artificial neural network. The resulting system is then applied as a disruptive technology which presents opportunities for a user to potentially increase water supply in selected geographical areas.

Furthermore, the CGS has amongst its ranks qualified research staff who can provide unique geoscientific solutions.

As challenges are met and overcome during the implementation of innovative technologies and solutions, it remains important to keep one's eyes open for opportunities to improve each technology and solution. Improvements effected may form the subject of further patent applications if new, thereby enhancing the brand of the CGS.

ii. Registrable trademarks

A trademark constitutes any sign capable of being represented graphically, used for the purpose of distinguishing goods or services from the same kind of goods or services in the course of trade. Trademarks are recognised by the Trademarks Act No. 194 of 1993 and the Regulations thereof.

a. Trademark rights

A trademark that is capable of distinguishing the goods or services of an applicant from the same or similar goods or services of another person, may be registered.

Registration brings about the rights to prevent unauthorised use of identical or similar marks on the same or similar goods or services for which the trademark is registered. These rights may be offered for sale or lease, partially or wholly, to generate revenue.

b. Ownership within the CGS

The CGS is the owner of the trademark, the applicant in the application for registration and the proprietor of the subsequent registered mark.

c. Identifying a registrable trademark at the CGS

A trademark must be distinct. There are quite a number of restrictions and limitations when it comes to formulating registrable trademarks, for example:

A registrable trademark must NOT:

- designate the origin and intended purpose of the goods;
- be identical or similar to a well-known trademark;
- be a generic mark used for those goods or services;
- be descriptive of the purpose of the

goods or services; or

- be the same or similar to registered trademarks for the same or for similar types of goods or services for which the mark is going to be used.

It is advisable to use new names and unique logos when designing trademarks.

d. Opportunities at the CGS

The CGS may register "ROBIO" for the Invention Redox by In-Situ Ozonation in order to distinguish the invention from similar technologies. Displaying the ROBIO mark alongside the CGS logo when implementing the invention may also form part of a brand-awareness strategy.

iii. Trade secrets/confidential information

Trade secrets constitute the CGS's private information. Trade secrets are recognised by the common law of South Africa, which has been informed by Roman Dutch law and influenced by English and indigenous African law.

a. Rights associated with trade secrets

The common law restricts unauthorised users from accessing or using trade secrets. The CGS has these rights against unauthorised users:

- to stop them from using the information;
- to claim damages from them; and
- to lay criminal charges against them.

b. Ownership within the CGS

Trade secrets belong to the CGS.

c. Identifying trade secrets at the CGS

In order to qualify as a trade secret, the information has to:

- be secret or confidential;
- be of economic value to the CGS; and
- relate to and be capable of application in trade or industry.

d. Opportunities at the CGS

The CGS cannot patent or trademark all its information. There are countless examples of know-how being communicated in emails, files and ledgers. By controlling the sharing of this know-how, trade secrets can be protected. Taking steps against the unauthorised sharing of confidential information is important in establishing a culture of respect for CGS trade secrets.

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