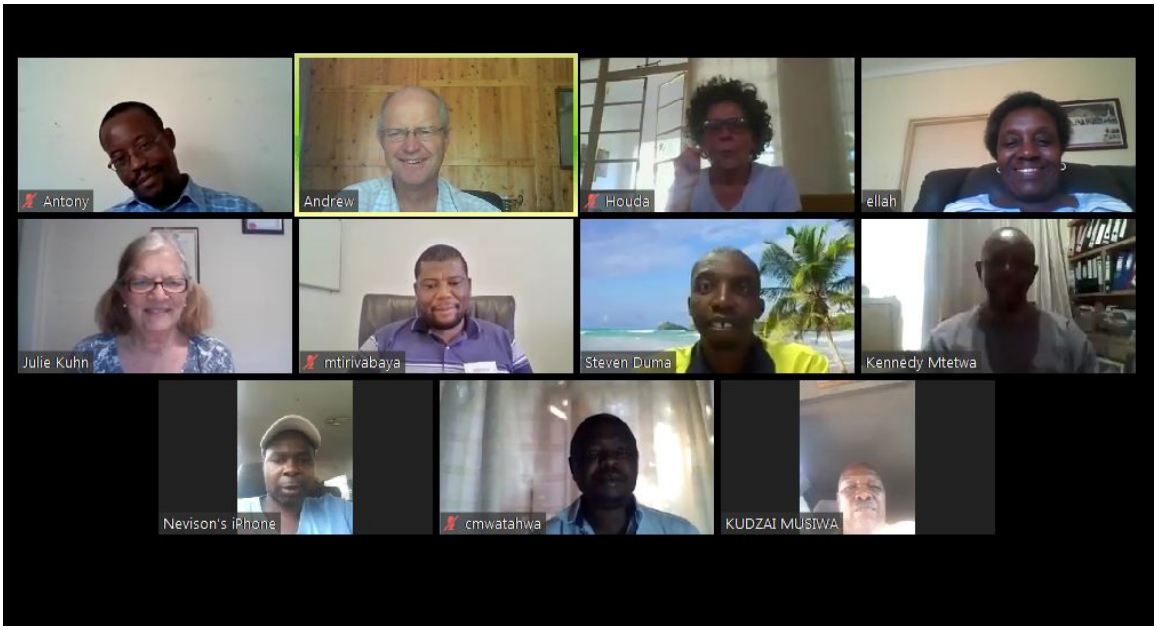
Geological Society of Zimbabwe

Newsletter

May 2020 No. 2 of 3 of 2020



The first 'Zoom' Committee Meeting for 2020. Life under 'Lockdown'.
See details of Ellah Muchemwa's new Committee at the end, together with their portfolios and contact details. *Photo: Andrew du Toit*

www.geologicalsociety.org.zw

The Geological Society of Zimbabwe, P.O. Box CY 1719, Causeway, Harare

Contents

Editorial

This is the first Newsletter under the Chairmanship of Ellah Muchemwa and her new Committee. We welcome them to their respective tasks as allocated for 2020. Achieving their goals, of course, is made all the more difficult under the prevailing pandemic conditions. As our frontispiece shows, they are adapting to the challenge through their online monthly committee meetings, and the list at the end of this Newsletter shows the make up of your representatives and their allocated portfolios, together with contact details to make your communication more effective. Ellah's Chairperson's Chat outlines some of the initiatives taken, the restrictions that are consequential to the lockdown and confirmation that our ambitious planning for the June Mineral Resources Conference have per force been postponed. Our link to the Geological Society of South Africa's online talks and short courses, is a commendable step and we encourage our Membership to register and participate in these initiatives. Presentations arranged by our Committee for our own Society talks will form an online part of this sharing programme. We look forward to a fruitful relationship in this regard. You will note that registration on some of the online events will attract CPD points for those needing to make up their quota.

We also welcome to the Society our new Members as detailed below, but note with sadness the passing of two of our Honorary Members, David Murangari and Prof. Maarten de Wit. We salute both of these luminaries as they have, in their own ways, contributed significantly to the advance of geology and mining in southern Africa and beyond, and in turn have enriched the lives of many of us.

Current membership – May 2020

Members - 148

New members in the period January to April

Dinginya, Paul
Musengezi, Valentine
Mabhanga, Shepard
Zvorufura, John

Associate Members - 24

New Associate members in the period January to April

Masukume, Tafadzwa

Honorary Members - 16

Changes in the Honorary members register in the period January to April

Deceased - Murangari, David
Deceased - de Wit, Maarten

Foreign Members - 10

New Foreign members in the period January to April

Linnell, Richard

David Edgar Hoover Murangari, 26/02/1940 -24/02/2020

David Murangari – MMCZ Board photo

David was born in Sakubva, Mutare, the second eldest in a family of nine children. His formative years were spent near Mutambara but later he attended Goromonzi Secondary School between 1954 and 1959 and then gained his BSc in Geology from the University of Addis Ababa in 1966, following which he initially worked in exploration in the Danakil and on dam site investigations in Ethiopia.

- He undertook mineral exploration in Utah and Colorado, USA for Cities Services Corporation.
- David's MSc Degree was attained at the Colorado School of Mines, Boulder in 1976.
- Mineral exploration activities in Zambia were for Anglo American Corporation, Noranda and Minex over a period of more than 6 years.
- He returned to Zimbabwe in August 1980 and joined the Geological Survey to become Regional Geologist Harare before being appointed Deputy Director in 1983.
- David transferred to H/O in 1985 as Deputy Secretary, being appointed Secretary for Mines in 1988, a post he held until 1997.
- In March 1997 he was appointed Vice-President to Trillion Resources Ltd and Managing Director of Trillion Zimbabwe P/L.
- His appointment as CEO to the Chamber of Mines of Zimbabwe was in February 1999, a post he held until 2007.
- From May 2007 through 2013 David was Managing Director to Bindura Nickel Corporation (BNC).
- He was President of the Chamber of Mines in 2008-2009 and in 2011 was immediate Past President and was made a Life Member of the Chamber.
- He has since been non-executive director of ASA Resources Group plc (BNC and Freda-Rebecca), and has represented the boards of the ZMDC and MMCZ as well as others.

David was recognized as an Honorary Member of our Society at the AGM in February 2011.

Professor Maarten de Wit, /01/1947 – 15/04/2020

Maarten de Wit – File photo

Professor Maarten de Wit, Earth Stewardship professor at Nelson Mandela University in Port Elizabeth and Founding Director of the African Earth Observatory Network (AEON), passed away in the early hours of Wednesday 15th April at his home near Plettenberg Bay.

Born in Holland and schooled in Ireland, Maarten completed his PhD in geosciences at Cambridge University (at the same time as Euan Nisbet, another of our Honorary Members). He spent four years at Columbia University in New York, conducting most of his field work in Chile trying to understand the origin of the Andes mountains and how this mountain range connected with Antarctica.

He left academia to join the United Nations, training geologists in Ethiopia for two years. Disillusioned, he returned to Europe to cycle around the continent for a year. A chance meeting with a South African professor in a pub in Amsterdam was the catalyst for his coming to South Africa in 1979.

He spent 10 years at the University of the Witwatersrand's Bernard Price Institute for Geophysics, researching rocks - some 3.5-billion years old - in Mpumalanga's Barberton area. "I've always been interested in understanding how the Earth worked when it was young. South Africa is a phenomenal geological laboratory for early Earth and life studies and for later times when the Earth's land masses were one supercontinent, Gondwana, which I became obsessed with." This was the subject of his A.M. Macgregor Memorial Lecture to the Geological Society of Zimbabwe in 2002.

De Wit moved to the University of Cape Town in 1989 and spent 22 years there as the Philipson Stow Professor of Mineralogy and Geology. He founded the Centre for Interactive Geographical Computing in the mid-1990s, which evolved into Earth Stewardship and was renamed Africa Earth Observatory Network in the mid-2000s.

Taking up his Earth Stewardship post at Nelson Mandela University in 2011, Maarten adopted a multidicipliary approach and co-operated using applied earth science in many departmental projects, including promotion of the 'Africa Alive Corridors' programme, which embraces science, culture, landscape in a positive, educational, pan-African context. It has been said that few investigate the bigger picture as a science on its own, encompassing all the problems affecting a particular piece of the Earth and its people. His influence has been widespread amongst us.

Adapted from the George Herald of Friday, 17 April 2020.
file:///Users/apple/Desktop/Professor%20Maarten%20de%20Wit%20leaves%20colossal%20legacy%20|%20George%20Herald.html

With the help of Newsletter liaison Committee Member, Kennedy Mtetwa, we are gratified to spread the net to other Earth Science-oriented institutions around Zimbabwe. Other than news relating to our stalwart contributors from the Geology Department at UZ and from the Zvishavane Campus at MSU, we are delighted to welcome an understanding of the activities at the Zimbabwe School of Mines, the Applied Earth Science's Programme within the Department of Applied Physics at the National University of Science and Technology (NUST) in Bulawayo, and from the Department of Mining and Mineral Processing Engineering started in 2013 at the inception of the Manicaland College of Applied Sciences in Mutare. We also have news from the Mennell Society Chairman, and we are keen to maintain these columns in future newsletter editions.

As always, Forbes Mugumbate has summarized the state of our mining industry in his inimitable way, whilst delegating the news from the Geological Survey to Vimbai Takawira. As Editor it is distressing in the very least to witness the stripping of staff from the Geological Survey to make it albut non-functional. We as fellow Earth Scientists and as a Society should give Forbes all the support we can as he faces a near impossible challenge to sustain the viability and roll of the Geological Survey in all its ways.

Thanks too must go to Tony Martin for his summary of all talks presented at our November 2019 Summer Symposium. This to a man who has been locked down in Sedgefield near Knysna for the duration – a happening that could not have been easy in the absence of a smoke and a drink. At least that inconveneince has been eased. We wish him a speedy return to our midst.

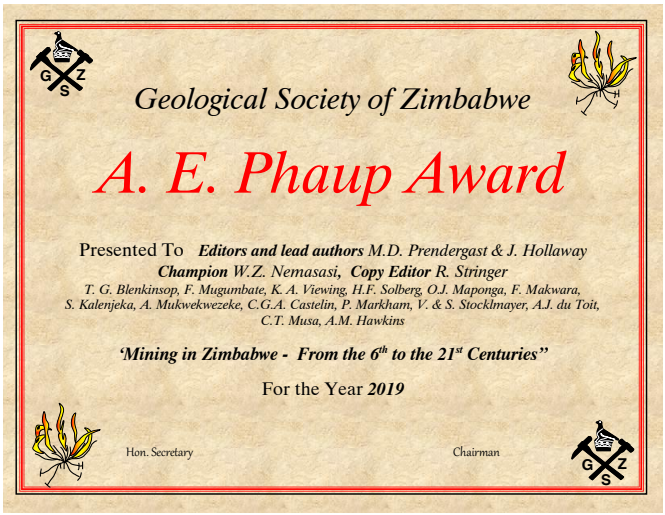
This year's AGM was held on 28th February at Kia Ora Lodge, Knightsbridge Road in Newlands. Andrew du Toit was our guest speaker at the dinner, presenting on the adaptation of birds to our varied geological environments. The following represent a record of the awards made during the dinner. Your Editor was privileged to receive a gift acknowledging his 22, interupted, years involved in editing this Newsletter. He had started with a one-page postal flier in 1985 at a time when he used the nom de plume *Icositet*, an acronym relating to the logo of the Rhodes University Geological Society and its use of a twinned cubic crystal form. I was taken aback, and most honoured.

The Geoffrey Bond Award for the Geology Honours Degree project at UZ adjudged to be the most worthy of those projects submitted in 2019 was made to **T. Kandemiri** for his dissertation entitled *"Geology and gold mineralization styles of the Glenn High Prospect, Bulawayo Greenstone Belt".*

The Mike Vinyu Award for the top student in Geology at the Zimbabwe School of Mines in 2019 was made to **Mr Godwill Mutukura**.

The Keith Viewing Trophy for the presentation judged the best at the 2019 Summer Symposium was given to **Dr Sharad Master** for his delivery of *"Sijarira surprise! Preliminary age data on detrital zircons from the Sijarira Group, western Zimbabwe reveals an unexpected Antarctica connection."*

The A.E. Phaup Award for the peer-reviewed paper or publication making the greatest contribution to the furtherance of Geology in Zimbabwe in 2019 was made to the authors and editors of *"Mining in Zimbabwe from the 6th to the 21st Centuries"*, Chamber of Mines of Zimbabwe, 645 pp. The recipients were **M. Prendergast, J. Hollaway (Editors), W. Nemasasi (Champion), R. Stringer (Copy Editor), T.G. Blenkinsop, F. Mugumbate, K.A. Viewing (post-humous), H.F. Solberg, O.J. Maponga, F. Makwara, S. Kalenjeka, A.J. Mukwekwezeke, C.T. Musa and A.M. Hawkins (Contributors).**



An enquiry sent to the Geological Society website from one Alistair Rickards of the Essex Rock and Mineral Society concerned a specimen of euhedral magnetite crystals given to him as a boy by Frank Tennick, onetime Regional Geologist Bulawayo, when living in Zimbabwe in the 1960's. This generated quite some interest, it seeming that the most likely origin would be from one of our carbonatite complexes. Sue Stocklemayer from Perth, Tony Martin from Sedgefield, Kennedy Mtetwa, and others all made suggestions, but it was Forbes Mugumbate who came up with a similar specimen he had retrieved from Dorowa in 1996 when visiting that complex with a team from the BGS. Frank Tennick was reunited with his neighbour from the 1960's, but he could not recall details of the specimen he had given to an enthusiastic boy. The two photos are presented for comparison sake.

Euhedral magnetite - Francis Rickards, c. 1967, Zimbabwe and Forbes Mugumbate, 1996, Dorowa ring complex

Tim Broderick

Chairperson's Chat

Ellah Muchemwa

I would like to thank you, the Members, for giving me and my Committee the opportunity to serve the Geological Society during 2020-2021.

Some of the important areas of focus for the Society this year include:

- Safeguarding the value of the our financial resources as discussed at the February 2020 AGM.
- Contributing to the development of our members through arrangement of short courses, field trips and informative Society talks.
- Continuing with the good work started in 2019 -2020 to build up the strength of the Society by growing our membership whilst retaining the current members.
- Over the years there has been ongoing discussion on five separate but linked issues of whether to register the Society as a professional organisation or not; to develop and adopt a Code of Conduct/Ethics for the Society; to uphold Competent Person's reporting; and to promote Continual Professional Development. The committee will be revisiting these issues again and they look forward to your support and participation in productive discussions and the development of positive outcomes.

Sadly the Committee had to take the very difficult decision to cancel the Society's Mineral Resources Conference 2020 scheduled for 25-26 June this year. This was due to the many uncertainities caused by the Covid-19 coronavirus pandemic. A lot of good work had been done by the sub-committee to ensure the success of this conference, but the Society felt that the restrictions, constraints and uncertainities arising from the pandemic were too great to allow them to prepare adequately for the conference. However, all is not lost as a lot of the excellent papers submitted will be adapted as presentations that may reach you by means of various innovations.

Your Committee has reviewed its operations during the pandemic and has adopted the following:

- Two out of the three monthly committee meetings scheduled since the 2020 AGM have been held virtually to observe social distancing. This means is effective and will continue during the lockdown and beyond.
- Society talks will continue but will be hosted virtually. The calendar of scheduled talks will be published soon. Please join us from the comfort of your own homes for one more of the scheduled online talks.
- No field trips will be organised during the lockdown, but their organization will resume as soon as is practicably possible.

The GSZ committee has agreed with the Geological Society of South Africa to collaborate in delivering talks to both Societies in the following manner:

- The GSSA (and vice versa) will make the free and paid online Zoom-hosted talks available to GSZ members.
- The GSSA will notify GSZ members (and vice versa) about GSSA talks and events through an online calendar as well as an online link.
- Each talk has a registration link included, and GSZ members can register with this in order to manage Zoom licensing issues and to ensure security.
- The GSSA talks/calendar will be added to the GSZ website and is also available on the GSSA website https://www.gssa.org.za/.
- GSZ members will be added to the GSSA mailing list for them to get notifications about talks and events. However, GSZ members will need to request to receive the mails to show their agreement to receive the mailers. Members can request this by mailing Lully Govender lully.govender@gssa.org.za.

GSSA members will be notified of GSZ talks through the following methods:

- GSSA would add GSZ talks to the above-mentioned calendar, specifying that it is a GSZ talk.
- GSSA would advertise individual talks to the mailers we send to the mailing list, subject to receiving it timeously. The information can be sent to me.

In addition, the two Societies can draw from both pools of speakers for future talks but will remain separate and independent organisations. This should broaden the topics and speakers available to both societies. Please make use of this collaboration for our mutual benefit.

This Newsletter remains one of the most important links between our society and its membership. We are very grateful that Tim Broderick, alias ICOSITET, has kindly agreed to continue collating and editing our newsletter with assistance from our committee member Kennedy Mtetwa.

I would like to thank those of you who attended the AGM and the dinner. The turnout for the AGM and for the post AGM dinner was good despite the economic challenges we face. The society celebrated the achievements of the Society's award winners, namely the Bond Award and the Phaup Awards. I would like to thank Andrew du Toit – who was our after dinner speaker - for giving us a fascinating insight into the link between birds and and the different rock types and formations across Zimbabwe.

Finally I would like to thank last year's Committee led by Nevison Chikandiwa for a job well done.

I wish you and your loved ones good health at this time. Keep safe and keep your hands clean in light of the prevailing Coronavirus situation.

Chairman's Profile 2020

Ellah Muchemwa is a qualified geologist with over 30 year's experience in the mining industry in Zimbabwe, Namibia and South Africa, and is currently a consultant to the mining industry with Mrell Consultancy.

She joined the Geological Survey of Zimbabwe in the Ministry of Mines and Mining Development in 1983 and served there for four years in various capacities. Whilst there she published a paper under the Geological Survey Minerals Resource Series on graphite and also made contributions to Bulletin No. 94, which covers the geology of the Harare Greenstone Belt and surrounding granitic terrain by J. W. Baldock.

Ellah Muchemwa joined Rio Tinto in1987 and served there until the end of 2015. She worked for Rio Tinto PLC in three different countries – South Africa for Richards Bay Minerals, Namibia for Rossing Uranium Limited, and in Zimbabwe for Rio Tinto Zimbabwe. She was part of the exploration team that found and established the Murowa Diamond Mine southeast of Zvishavane, from greenfield principals.

Ellah has been a member of the Geological Society of Zimbabwe for over thirty years and was Membership Secretary of the society from 1995 to 1997. In 2001, she was the first woman to have been elected Chairman of the Geological Society of Zimbabwe. She is also a member of the Geological Society of South Africa (GSSA), and of the Institute of Directors of Zimbabwe (IODZ). She was the first woman to be elected into the Chamber of Mines Presidium as the 2nd Vice President for 2010.

Mrs Muchemwa, holds a BSc General Degree in Geology and Botany, and a Special Honours Degree in Geology, both from the University of Zimbabwe. She is a co-author of several scientific papers published in reputable international journals.

Articles and Reports

Summary of Presentations at the 2019 Summer Symposium

Tony Martin

Overview of the petroleum exploration completed and planned by Invictus Energy in its Muzarabani Prospect (Special Grant 4571) in the Carbora Bassa Basin, Northern Zimbabwe

Brent Barber

Previous work by Invictus on its Muzarabani Prospect includes the capture and reprocessing of legacy data and in particular the Mobil seismic study of the 1990s. This has given much better resolution of the structure and potential reservoirs, and re-evaluation of these suggests sufficient gas and condensate potential to proceed with further exploration. To reduce risk, Invictus are planning to run infill seismic lines in 2020 and, based on results, will drill the best targets.

Sijarira surprise! Preliminary age data on detrital zircons from the Sijarira Group, western Zimbabwe reveals an unexpected Antarctica connection

Sharad Master, S.M. Glynn, M. Wiedenbeck, M. Ntsoane

The red bed Sijarira Group in northwestern Zimbabwe is exposed in the Chizarira Hills and around Hurungwe, with a small outlier near Chinhoyi. The Sinclair and Ghanzi-Chobe groups across Botswana and into Namibia have been suggested as extensions of the Group. The Sijarira has not been dated: it unconformably overlies the ~2 Ga Magondi Belt and a granite with a reset Rb-Sr age of 1210 Ma, and was overthrust by the "Urungwe Klippe" at around 550 Ma.

It consists of quartz sandstones (with detrital minerals indicating a metamorphic provenance) including minor conglomerate and shale. These were deposited in a continental fluvial/shallow marine setting and palaeocurrents indicate a source to the east and southeast. Given the heavy mineral types, palaeocurrent directions and position, the obvious Sijarira source should be the underlying Magondi with some Archaean input. This proved not to be the case – hence the title of Sharad's presentation.

The surprise was the ages of the detrital zircons: the greatest number cluster around 1050 Ma, and the youngest is 632 Ma – giving an age bracket for the Sijarira of between 632 and 550 Ma. Magondi ages are very under-represented and there are none from the Archaean. So, if the Sijarira provenance was not Magondi or the Craton, where was it? Gondwana reconstructions place Antarctica against the eastern coast of Africa prior to 550 Ma and in particular the Maud Metamorphic Belt which is a match, to the Sijarira in terms of its heavy minerals and age.

The dates also rule out correlations with the older Sinclair and Ghanzi groups and suggest they could be grouped with the Okwa in Botswana, the Nama in Namibia and the Kundelungu in the DRC.

Superplume versus far-field stress as geodynamic controls on Witwatersrand sedimentation and Ventersdorp LIP magmatism: new insights from south-retreating and north-advancing orogens of 3.1-2.5 Ga Kalahari Supercontinent

Mark J. Tsomondo

This presentation was a continuation of the Limpopo Belt and its effects on the two cratons that were amalgamated during this collisional event. The complexity and controversy largely revolve around what was happening within each craton prior to and during this event. As Mark pointed out, there is ~2.75 Ga volcanicity on both cratons but with the very different tectonic settings of the Ventersdorp and Bulawayan Supergroups – and almost synchronous with this is the 2.75–2.74 Ga onset of the Limpopo collision. And the events within each craton are different. The Kaapvaal, apart from some larger

and older greenstone belts, also has many of similar age to those in Zimbabwe. It also has large intracratonic depositaries – the Dominion-Witwatersrand-Pongola-Ventersdorp-Transvaal supergroups, which range in age from Sebakwean to Shamvaian, and which are absent in Zimbabwe. Both have early Archaean fragments but these are older and aerially more extensive in South Africa. So, the questions are - to what extent has the Limpopo collision affected the interior of each craton, and how were these events influenced by the interior make-up of the two cratons?

Mark's explanation was complex and includes thrusting with evolving and moving subduction zones within the Kaapvaal prior to collision as well as the roles played by the Swazi Ribbon and the Tokwe Segment, and other structures within the Kaapvaal.

The Great Dyke of Great Treasures and Great Mysteries

Forbes Mugumbate

The Great Dyke was first recognized by Karl Mauch around 1867 and named by Zealley in 1912, but the first comprehensive description was only published by Worst in 1960. Chromite mining started in 1918 and platinum was discovered around 1912 but only successfully exploited in the mid-1990s.

There have been a number of recent investigations of the chemistry of the magmatic stratigraphy, the shape and intrusion at depth and the geochronology, and Forbes summarised a number of ideas that have been advanced as to its tectonic and magmatic origin. The repetitive layering has been ascribed to fractional crystallization following repeated magma influxes, with current action, pressure and oxygen fugacity variations, crustal contamination and magma mixing being additional influences. All of these have been invoked to explain some of the more enigmatic features of the Dyke, examples of which include the sharp contacts of the chromite layers and the concentration of metals within the Main Sulphide Zone.

The accepted age of the Dyke is now 2575.4 $\pm$ 0.7 Ma, which is taken as the boundary between the Archaean and Proterozoic – at least in Zimbabwe. The intrusion of the ~2600 Ma Chilimanzi Granites is the last major event in the Archaean although the age varies across the Craton with some dates apparently being younger than the Dyke. Other similar dates include the 2591 ± 4 Ma peak metamorphism in the Limpopo Belt, which suggests that these major events might be related in some way.

Many other theories on the origin of the Dyke have been proposed from a links to the Vredefort Impact, the African Rift System, and the Chewore (Zambezi Valley) and Atchiza (northern Mozambique) complexes. Although most of these have been proved to be untenable, many mysteries remain.

A new Late Triassic Fossil Vertebrate Assemblage from Zimbabwe: Key to the Understanding of the Origin of Dinosaurs

Chris Griffin as read by *Tim Broderick*

Tim spoke of rhynchosaurs, cynodonts and aetosaurs, which he and the team led by Chris Griffin from the Virginia Tech found on two dinosaur-hunting trips to the Zambezi Valley. Curiously, these beasts were restricted in time and space to the mid-Triassic Carnian period from 237 to 227 Ma and the assemblage had previously only been found in Brazil, Argentina and India. Reconstructions of Pangea showed a continuum of these fossils from east to west – but with a gap in Africa. However, Oesterlen discovered rhynchosaur dentition in the Zambezi Valley in 1988 and with Raath and Kitching (1992) confirmed the presence of hyperodapedontid remains in association with a possible dinosaur bone.

With this evidence the Team, in collaboration with National Museums, targeted the Carnian in Zimbabwe where it is better known as the Pebbly Arkose near the top of the Karoo Supergroup, and in particular homed in on areas of dissected "badland" topography in the northern part of Zimbabwe. The team was very successful and discovered a number of early dinosaur remains with unpronounceable names and for those who are interested these included hyperodapedontid rhynchosaurs, traversodontid cynodonts and armoured archosaurs referred to as aetosaurs, as well as bones akin to *Saturnalia*, an early sauropodomorph, and a carnosaur, the Argentinian version of an herrerasaurid.

What is important about these 'critters' is their association, which matches that from India and South America and suggests a restricted range for these early dinosaurs to a specific latitudinal position that controlled the climate. Only later, and at a higher stratigraphic level, did the sauropodomorphs appear in the corresponding climatic band to the north of the palaeo-equator.

The Geology and Historical Importance of the Abanab Vanadium Mine in the Otavi Mountain Land (Namibia)

Mark Watts

The 730–530 Ma Otavi Mountain Land at the eastern end of the Damara Orogenic Belt in Namibia contains three types of mineralization:

- Low-temperature and high-salinity Mississippi Valley-Type Zn-Pb deposits.
- Higher-temperature, lower-salinity, Cu-Pb-Zn-Ag fluids of possible metamorphic origin.
- V-rich deposits spatially related to recent weathering overprinting the earlier deposits.

The Abenab deposit produced 56,600t of vanadium/lead/zinc concentrate between 1921 and 1958. It consists of a steeply dipping 100m by 80m pipe-like breccia body, which extends beyond 415m in depth along the contact between limestone and dolomite. The

dominant ore mineral is crystalline descloizite, which occurs on the breccia clasts and within the calcite and clay matrix.

The Abenab West deposit is strata-bound within steeply dipping dolomite. Descloizite occurs in the upper parts of this orebody associated with willemite, cerussite and anglesite, whereas galena and sphalerite are more prominent at depth.

All three styles of mineralization are present in the Abenab and Abenab West areas. The latter is dominantly of primary Mississippi Valley Type with lower-grade, syngenetic disseminated and some lenticular massive sulphides, but there is also evidence of sulphide remobilisation. The Abenab deposit is hydrothermal and probably due to remobilisation of the primary mineralization into the breccia pipe with locally developed hydrothermal veins. Both of these have been impregnated with vanadium-rich surface water with the deposition of descloizite.

Some Observations on Pegmatites

Tony Martin

Pegmatites in Zimbabwe occur in the Mesoproterozoic Magondi Supergroup and the Archaean. Both result from crustal re-melts and the volatiles generated from this process. The Archaean ones intrude the greenstone belts and have a close spatial association with the Chilimanzi. Those in the Magondi are not necessarily proximal to granites, but these are likely to be present at depth.

It is speculated that cooling of the remelted crust expels water and other volatiles that concentrate the rare elements found within pegmatites. These fluids are considered to have physical properties somewhere between a magma and a hydrothermal fluid. The sinuous shapes of pegmatites and shallow dips suggests emplacement under high pressure in a closed system unlike the flow-through mechanism of hydrothermal veins.

The internal textures and zones in mineralized pegmatites are complicated and none follow the border-to-core-zone pattern in text books. This indicates multiple injections of fluids of different compositions and physical properties. Brecciation and metasomatism of earlier pegmatitic material provide ample evidence of this.

The very coarse-grained nature of pegmatites is due to slow cooling and the mobility of elements within the fluids; both of these are provided by water, volatiles and the fluxes aided by the relatively high ambient temperature of the host rocks – as evidenced by the lack of distinct chilled margins and contact metamorphism. It should also be noted that to grow giant euhedral crystals requires open space and this also applies to any gem-quality material.

Structural Footprint of Gold Mineralization in Zimbabwe Greenstone Belts; A case study of Pickstone Peerless Deposit

George Rusike

The Peerless gold mineralization lies within a narrow, E-W trending, steeply-dipping corridor of carbonated greenstones with sheared black shales on either side. The area is proximal to three granitic plutons and lies in the middle of an indentational flexure that parallels the regional foliation of the northern fringe of one of these.

The Pickstone trend strikes NW-SE and coalesces with the Peerless trend to the west but it is hosted by banded iron-formation surrounded by talc-chlorite schists. Duchess Hill is an eastward appendage of the Pickstone trend displaced to the south by a fault.

The deformation within the Pickstone-Peerless shear is considered to have been caused by the diapiric upwelling of the granites which resulted in E-W elongation of the volcanic and sedimentary successions and some translational movement. This has produced ore lenses of higher grade and greater widths with predictable dimensions and spacing that are used to minimise exploration.

Tantalite Production in Post-Colonial Zimbabwe, 1980 – 2018: Challenges and Prospects

Tafadzwa Gwini

Tantalum has been known to exist in Zimbabwe since 1911 and by 1962 the country was the fourth largest producer of tantalite in the world (when it was largely a by-product of tin extraction). Current production has largely become the domain of small-scale miners. Tafadzwa's presentation highlighted the discrepancy between local production and market prices and suggested that the official records do not reflect actual production with much of the tantalum concentrates being exported through unofficial channels.

To address this situation, it was suggested that a tantalite marketing board be established and that claims should be owned by rural district councils so that they can realise the benefits of the production for funding of local infrastructure and provide for more organised marketing.

The Geo-Metallurgy of the Arcadia Pegmatite Swarm

Adam Moodley

Mineralized pegmatites in Zimbabwe have been subdivided into the Miami-type within high-grade metamorphic belts and the Archaean Bikita-type. The Arcadia pegmatite swarm in the Harare Greenstone Belt falls into the latter category.

Bikita-type pegmatites commonly contain lithium minerals and Arcadia hosts economic petalite, spodumene, some eucryptite and trace lepidolite. Petalite is largely coarse-grained, whereas most spodumene is fine and intergrown with quartz and these differences require a complex beneficiation process. A series of crushers, dense media separation and froth floatation have been tested in pilot plants to produce pure petalite and spodumene products with magnetic separation to recover tantalum.

The lithium market requires petalite and spodumene with very specific lithium contents and tight thresholds for deleterious elements for the various market applications. Ensuring that the plant feed meets the plant requirement is critical and mineralogical control on mining has a direct impact on the specifications of the final saleable product.

An Interpretation of Magnetic, Gravity and Magnetotelluric Measurements over the Magondi Circular Magnetic Anomaly of Zimbabwe

Tenyears Gumede

The Magondi Magnetic Anomaly is centred 140km almost due west of Harare. It is approximately 15km in diameter and within or below the Magondi Supergroup near the edge of the craton. The anomaly is large enough to cover both the Proterozoic and the Archaean at surface.

It consists of a deep-seated magnetic low with small magnetic highs to the north and northeast. Substantial gravity anomalies exist in places along edges of the magnetic anomaly and six magnetotelluric soundings were also completed.

The presence of these near-coincident anomalies generated exploration interest and all were modelled to optimise the collar position of a borehole planned to be drilled to 2000m. The hole was eventually terminated at 1094m having remained in various types of gabbro.

It was initially assumed that the gravity and magnetic anomalies had a common source but this proved not to be the case. The gravity anomaly can readily be explained by the presence of a large body of gabbro but not the magnetic anomaly.

Downhole geophysics included radioactivity, density and magnetic susceptibility measurements and 20 core samples were tested for Natural Remanent Magnetism. Nineteen NRM results had low intensities with one sample from a thin dolerite intrusion returning a very high value which could explain the magnetic anomaly if the dolerite were large enough. These data suggest that the magnetic anomaly lies well below the 1094m depth of the hole.

Modelling of the magnetotelluric anomalies indicates a large greenstone mass within a granite pluton and separate from the other anomalies.

ScanIT – Optimizing core logging data acquisition

Megan du Plooy

UCP Africa provides a range of core handling, storage and other equipment that assist in the optimization of data collection from core and ScanIT is a data acquisition tool developed to increase core logging efficiencies and precision.

The starting point is photographing the core with a sliding frame holding a smartphone camera that stores and rectifies an image of each tray to create a photographic archive with optical character recognition software storing the depth markers. The core can be logged on screen along with structural measurements, which can be viewed on automatically generated stereonets with core loss and RQD indices at selectable intervals.

Microseismic monitoring based approach to effective ground control management in unstable underground mines

Paul Matshona

Falls of ground are inherent with underground mining and this becomes a particular problem when pillar reclamation is contemplated. This presentation covers recent research into identifying the potential geotechnical hazards on a mine and the implementation of an effective ground control management system to minimise the effects of a proposed pillar reclamation programme.

To assist with the process, a microseismic monitoring system was designed around a rock mass classification of the lithologies and numerical modelling which determined areas of instability. The system comprises six near-field sensors with six far-field ones and although refinement is required it is proving effective in monitoring the ground control on the mine.

Applications of Ground Penetrating Radar Scanning and Borehole Logging at Unki

Simbarashe Wedu

Simbarashe reported on three tools employed at Unki Mine which have resulted in a significant reduction in falls of ground.

Ground Penetrating Radar has been successfully applied to identify fractures above the mine excavations and in particular potential wedges and key blocks and this information is used to inform support requirements. Scans using a down-hole camera delineate structures 4.5m above the mining cut in all active stoping and development ends. The data are recorded on video and plotted as a fracture log. Holes with observed fractures are highlighted for structural GPR scanning. “FOG light” instruments detect any minor ground movements and indicate when the light changes from green to red.

News

Geology Department, University of Zimbabwe

Maideyi Meck

The semester opened on 24th February and temporarily closed on 23rd March due to the Covid-19 pandemic. Before the closure we managed to -

- complete all outstanding teaching for the engineering students,
- attain attachment for 8 out of the 30 students who need attachment, and
- made all preparations for the Part 1 student's field excursion around the Harare-Shamva Greenstone Belt; for the Part 4 field trip to the Murehwa-Sunungukai area; and for the Part 2 field trip to the Mberengwa /Zvishavane area.

The School of Mineral and Earth Sciences was officially dismantled. The Geology Department is likely to be merged with one other science department, whist the Mining and Metallurgy departments will go back to the Faculty of Engineering.

Staff are working from home -

- New programmes are being worked on. The department is proposing to re-introduce the Masters Degree in Mineral Exploration course. We are also working on introducing three more Masters Degree courses, namely in hydrogeology, palaeontology and medical geology, in line with the Ministry of Higher and Tertiary Education 5.0. Input to these new programmes is welcome.
- Students are being assisted through various E-learning platforms and the university is working on how to complete the semester

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The Mennell Geological Society

President: Tinashe Mudzingwa (President)

Patron: Fadzanayi Bornwell Mupaya
fbmupaya@gmail.com

Membership

A total of 61 members currently constitute the Mennell Society. In order for one to be a Mennell Society Member it is required that initially a fee of ZWL30 is paid and thereafter a monthly subscription of ZWL15 is made. However, due to the current corona virus crisis, the committee agreed upon the freezing of all registration and monthly subscription payments until the university reopens.

Events

The Society has yet to organize any field trips for 2020 due to restrictions enforced by economic hardship and the Covid-19 pandemic. However, the committee is planning on inviting and hosting a guest speaker who might present on a chosen geological subject. The committee has also identified various geological monuments and mines around Zimbabwe that could be the focus of future field trips. Previously proposed dates for such activities have had to be postponed.

Committee

The Mennell Society Committee for the year 2020 comprises 10 members, details for whom are summarized in the table below with their respective positions.

Full Name	Mobile Number	E-mail Address	Position
Tinashe Mudzingwa	0782243142/0717900502	mudzingwatinashe1@gmail.com	President
Millicent Madanzi	0778695957	miliemadance@gmail.com	Vice President
Tinotenda Mutengwa	0774512144	tinotendamutengwa@gmail.com	Secretary
Kudzai Dzobo	0773524701/0713302514	kdzobo@gmail.com	Senior Treasurer
Watson Mungadzi	0782270261/0715197544	mungadzitw@gmail.com	Assistant Treasurer
Nyasha Gara	0778255388	nyashagara601@gmail.com	Public Relations Officer
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David Ndudzo	0779299208	davidnthonyndudzo@gmail.com	Committee Member

MIDLANDS STATE UNIVERSITY
FACULTY OF ENGINEERING & GEOSCIENCES
ZVISHAVANE CAMPUS

Updates from the Faculty of Engineering & Geosciences

Most physical facilities of the Midlands State University (MSU), including those at the Faculty of Engineering & Geosciences have been on temporary shutdown since 30th March 2020 in compliance with Zimbabwe's Statutory Instrument 83/2020 (Covid-19 National Lockdown). The lockdown, still in force at the time of writing, was effected barely a month into Semester 1 of 2020. In compliance with the lockdown, MSU and Faculty staff are largely working from home. Lecturers are delivering classes remotely via online platforms (e.g. MSU e-Learning system, Google Class and Zoom), as complemented through social media, phone calls and text messages in order to reach out to some students who might not be reachable via the internet.

I would like to share with the readership the excitement and gratitude that the Faculty (staff and students) have expressed following the recent resolutions by the Geological Society of Zimbabwe to (i) formally recognise an association of MSU geoscience students, and (ii) to sponsor a prize for the best MSU Geosciences Honours Degree dissertation that will be named in honour of the late Professor James Freeman Wilson.

Our Faculty, as guided by MSU, is part of the global effort in the fight against the Covid-19 pandemic. We are confident that this disruption will come to an end so that our key activities in research, teaching / learning and development, in collaboration with our local and international partners can once again resume its normal mode.

Submitted by Dr Antony Mamuse, Executive Dean
antony.mamuse@graduate.curtin.edu.au

NUST – DEPARTMENT OF APPLIED PHYSICS
EARTH SCIENCES PROGRAM

Program Overview

In August 2017, the Department of Applied Physics at the National University of Science and Technology (NUST) in Bulawayo, introduced a four-year Bachelor of Science Honours Degree Program in Earth Sciences. The motivation was to contribute towards the growth of research within and to the teaching of Earth Science subjects that are essential for the sustainable social and economic development of Zimbabwe. The Earth Sciences Program at NUST traces its origins to the late 1990's when the Department introduced the teaching of an elective undergraduate course in Geophysics and later went on to establish a Masters Degree in Geophysics in 2003.

The curriculum for the Earth Sciences Program is designed around the concept of applying Physics and Mathematics to the study of the Earth and its environment. Consequently, the minimum entry requirements for the programme are passes at 'A' Level in both Physics and Mathematics. The curriculum is broad-based in that students take courses drawn from various fields of Earth Sciences including Geology, Geophysics, Geochemistry, Meteorology and Environmental Engineering together with complementary courses drawn from the Departments of Applied Mathematics and Civil & Water Engineering. There is also a strong emphasis on the integration of theory and practice in the curriculum, thus fieldwork training is compulsory for all students participating in the program.

In the second semester of the third year of study, students go on Industrial Attachment or Work-Related Learning for a period of four to six months. The first Earth Sciences intake, which enrolled in August 2017, is currently undergoing industrial attachment training. We are grateful to industry for providing the placement opportunities to the students, and we hope they will continue to do so in the future. The industrial training is very important to students, as not only does it provide them with the techniques they require for the dissertation projects in their 4^{th} year, but it also equips them with a wide range of skills necessary in future employment. Upon graduation, it is envisaged that students will find employment in the fields of Earth Sciences such as groundwater exploration and management, earthquake hazard analysis, mineral exploration, oil and gas exploration, meteorology, environmental geosciences, geotechnical investigations and other applications.

Mr Gumbo training Part III students in the use of ground magnetic survey equipment. Magnetic surveys form part of the compulsory fieldwork training component for the **SES 3102** Potential Field Exploration Methods Course.

SES 2201 Soil Physics Course Field Training for students at Mamre Farm, Solusi. In this image students can be seen carrying out hydraulic conductivity measurements, whilst in the background another group of students prepares for a borehole pumping test. These activities ensure that students gain an appreciation of the practical and technological applications of Earth Science.

Currently, thirty students are enrolled in the Earth Sciences Program: eight **(8)** in Part III, ten **(10)** in Part II and twelve **(12)** are in Part I. Over the past three years, the Department has organized and conducted a number of field trips for students to observe and understand a wide range of Earth Sciences phenomena. Past field trips have included visits to Mimosa Mine in Zvishavane, the Nyamandlovu Wellfield, Hwange Colliery, and to the Sino Cement Plant in Midlands Province. Students have also undertaken half-day as well as weekend trips to the NUST Farm at Mamre, Solusi, for routine fieldwork activities. The Department has acquired state-of-the-art geophysical equipment such GEM magnetometers, a M.A.E multi-channel resistivity system, an A.G.I single channel resistivity terrameter, Seistronix multi-channel seismograph and borehole test pumping equipment for use by both staff and students in the field. There are five staff members in the Applied Physics Department teaching on the BSc (Hons) in Earth Sciences Program, namely: Prof. D.J. Hlatywayo, Dr I.K. Muchingami, Mr R.T. Mashingaidze, Mr C. Chuma and Mr M. Gumbo. Due to the interdisciplinary nature of the Earth Sciences curriculum, the Department is set to recruit more specialist lecturers to the program to cover all the major areas of specialization to include Geology, Atmospheric Science, and Geochemistry.

Submitted by Robin.T. Mashingaidze
robin.mashingaidze@nust.ac.zw

ZIMBABWE SCHOOL OF MINES

Serving the SADC mining industry

The year 2020 seemed promising for the Geology Department at the Zimbabwe School of Mines with an intake of seventy first-year students and eighty third-years. However, attachments for second-year students remained low at the time that schools were closed due to the Covid-19 pandemic. Regardless, the one week-long industrial exposure for our first-years was successfully completed at mines surrounding Bulawayo. This exposure helps students to decide if they wish to proceed with their chosen courses.

A few modules in the first semester were completed before 24th March 2020. The remaining modules are being done online via *Google Classroom*. Challenges faced so far are the practicals as our curriculum is mainly hands-on. Another challenge is that of the second-year students who are unable to continue with their attachments.

The School is prepared to continue with e-learning in the event that we will not be open by 27th July 2020. The Geology Department has three lecturers and one technician on their staff.

Compiled by Fyrence Ndebele

MANICALAND STATE UNIVERSITY OF APPLIED SCIENCES

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Department of Mining and Mineral Processing

The Department of Mining and Mineral Processing Engineering started in 2013 at the inception of the Manicaland College of Applied Sciences under the auspices of Midlands State University. The Department, which now falls under the Faculty of Engineering at Manicaland State University of Applied Sciences, was established in-line with Zimbabwe's agenda for sustainable socio-economic transformation. Thus as a department we are committed to producing mining and mineral processing engineers with an in-depth knowledge, not only in the field of mineral extraction, but also in value addition and beneficiation of the products produced.

The Department offers both conventional and block-release teaching schedules to accommodate students who are already employed within the mining industry. There is a double intake for conventional classes while the block-release class is accommodated once a year as resource issues are always a major challenge with this arrangement.

The current semester started in February, mainly with final-year classes. Teaching progressed well until the interruptions caused by the global Covid-19 pandemic. The current arrangement is to proffer lectures on *Google Classes*, but in practice this system is facing resistance from students who have challenges with respect to their access to internet data.

Students on work-related learning are progressing well since the mining industry has not been overly affected by the lockdown measures. Academic supervisors are still to visit and monitor progress to students on attachment. It is our hope that those in the mining industry will continue to accommodate our students to facilitate their much needed learning experience in a bid to bridge the gap between theory and practical applications.

The second semester will commence once the disrupted programme relating to the first semester has been dealt with. The actually dates are now subject to ruling from the Ministry of Higher and Tertiary Education in line with Covid-19 pandemic guidelines.

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Other Members include: Dr Mamuse, Mr Mutizhe and Mr Dzimunya

Submitted in liaison with Mr Amicable Hove

Geological Survey Department

Vimbai Takawira
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STAFFING MATTERS

Sokesimbone Lunga, a long-serving geologist and Deputy Director, resigned from his post in March 2020.

Ernest Mugandani, Principal Geologist, has been promoted to be the substantive Deputy Provincial Mining Director for the Midlands Province.

Mitshell Maisera, Senior Geologist, has been promoted to be the substantive Deputy Provincial Mining Director for the Matebeleland North Province.

Frank Muzanenhamo, Chief Geologist, has been promoted to be the substantive Deputy Provincial Mining Director for Manicaland Province.

Lloyd Magombedze, Senior Geologist, is on indefinite secondment to the Ministry's Head Office.

Tapiwa Magidi, Senior Geologist, is on indefinite secondment to Mashonaland Central Province.

Brian Muteta, Senior Geologist, is on indefinite secondment to the Ministry.

Benedict Ncube, Senior Geologist, is on indefinite secondment to the Ministry.

The result of these staff movements represents depletion in the capacity and functionality of the Geological Survey. There are virtually no experienced staff members left within the department.

The department has two UZ Geology students on attachment. **Ms Audrey Shamu** has been on attachment since November 2019, while **Ms Karen Mushayi** joined us on attachment in March 2020. The third attachee, **Mr Gilbert Kupeta,** joined the department in October 2019 but was co-attached to the ZCDC as of February 2020.

Update on the Directorship of the Provincial Offices, Ministry of Mines and Mining Development

Province	Director	Deputy Director
Manicaland	**Omen Dube**	**Frank Muzanenhamo** (ex ZGS)
Mashonaland Central	**Tariro Ndlovu**	**W. Mburundu** (Acting)
Mashonaland East	**Tendai Kashiri** (Acting) (ex ZGS)	**Godfrey Dairai** (Acting) (ex ZGS)
Mashonaland West	**Ms. Sibongubuhle Mpindiwa** (Acting) (ex ZGS)	**Ms. Mitshell Maisera** (Acting) (ex ZGS; transferring to Mat. North)
Masvingo	**Marshall Muzira** (Acting)	**Tawedzerwa Magwasarira** (Acting)
Matebeleland North	**Farai Ngulube**	
Matebeleland South	**Tichaona Makuza**	**Khumbulani Mlangeni**
Midlands	**Nelson Munyanduri**	**Ernest Mugandani** (ex ZGS)

Malcom Mazemo, former Provincial Mining Director for Mashonaland Central Province, who had been suspended to pave way for investigations on allegations of abuse of office, was cleared of the alleged crime, and is back at work at the Ministry Head Office pending redeployment.

Update on the directorship of Departments within the Ministry of Mines and Mining Development

Department	Director	Deputy Director
Technical Services	**Charles Tahwa** (Chief Director)	
Mining Promotion and Development	Dr **Mercy Manyuchi** (Acting Chief Director)	
Geological Survey	**Forbes Mugumbate**	
Mining Cadastre (under ZGS)		**Portia Mungate**
Mining Engineering	**Michael Munodawafa**	**Tapererwa Paskwavaviri**
Metallurgy	**Danmore Nhukarume**	**Wonder Chigwida**
Mining Research and Value Addition	Dr **Mercy Manyuchi**	Ms **Tatenda Mudzamiri** (Acting)
Energy Minerals	**Leon Godza** (Acting)	**Benedict Ncube** (Acting) (ex ZGS) T**. Mazonde** (Acting)
Non-energy Minerals	**John Makandwa**	**Brian Muteta** (Acting) (ex ZGS) **Arnold Mukombachoto** (Acting)

Policy Administration, Monitoring and Evaluation	**Elton Makumbe** (Acting)	**Charles Mazingaizo** (Acting)
Information Technology	**Thomas Singizi**	**Mrs S. Kachote**
Legal Services	**Mrs Jaqueline Munyonga**	**Ms Rufaro Mupandasekwa**

Join the Geological Society of Zimbabwe Facebook Group

NEWS from the MINING INDUSTRY

Forbes Mugumbate
fmugumbate@gmail.com

Covid-19 wreaking havoc

Coronavirus disease 2019 (Covid-19), first identified in December 2019 in Wuhan, China, and which has since spread globally, is wreaking havoc to the global economy. Our mining industry has not spared. The industry is now confronted by a new reality as measures to curb the spread of the virus impact negatively on mining operations and their supply chains that include manufacturing industries, the general public and, in consequence, the demand for minerals and metals.

As with most countries, Zimbabwe took measures to restrain the spread of the virus. President Mnangagwa first announced a lockdown on 30th March, which was

subsequently extended on several occasions. As I write this report, the country is on an indefinite lockdown at level-2 that allows limited economic activity.

Although initially all sectors of the Zimbabwe economy were affected by the lockdown, miners and other stakeholders advocated for an exemption, articulating the sustainability challenges arising from the lockdown, and the pivotal role occupied by mining in economic development. All mining operations were granted permission to operate under the condition that all workers would be tested for the virus. This has, however, proved difficult to implement, as the necessary kits for testing are not easily available. As a result, miners have been allowed to operate without the tests, but are required to observe guidelines to minimise the spread of the virus.

Unfortunately the mining industry continues to suffer as other links within the mineral supply chain have not been exempted to the same degree. In particular mining equipment, spares and consumables are difficult and expensive to procure as a result of the global lockdown. Mining costs are certain to go up, threatening to erode the gains realised by recent increases in international commodity prices.

Although the larger established mines can easily implement the World Health Organization guidelines regarding hygiene and social distancing, small-scale miners cannot easily do so due to the nature of their working environment. Like other informal businesses, small-scale mining areas are therefore potential hot spots for the spread of the virus.

We are still to feel the full impact of the pandemic on the global mining arena, especially with respect to the pricing of mineral commodities. Already the International Wrought Copper Council (IWCC) has forecast the global copper market to be in surplus by 285 000t this year as a result of the coronavirus pandemic. There are also forecasts that the development of mines in sub-Saharan Africa, especially by Chinese companies, will slow by year-end due to logistical challenges being faced as a result of the Covid-19 pandemic, and also due to a reduced access to State-subsidised capital.

The gradual re-opening of major economies is giving some hope for the recovery of the mining industry. Already palladium prices have reacted to this, jumping to above $2000/oz amid renewed optimism surrounding the re-boot of China's economy, and due to a planned stimulus from car makers who are the biggest consumers of the metal. It is also hoped that investors who are presenting a cold shoulder to the development of their lithium projects due to doubts in the future of the electrification revolution and implications associayed with the Covid-19 pandemic, might regain confidence in the prospects of economic recovery.

In addition reports by the World Gold Council and the London Bullion Market Association (LBMA) suggest that gold still has an important role to play despite Covid-19. Gold is maintaining its centuries-old role as a safe haven and store of value in troubled times. The gold price rose 5.8% during the first quarter of 2020, from $1520.55/oz on 2nd January to $1608.95/oz on 31st March this year.

Zimbabwe mineral production for the first quarter of 2020

Mineral	2020	2019
Gold (kg)	5722	6523
Platinum (kg)	3734	3417
Palladium (kg)	3121	2825
Diamond (cts)	496,901	394,809
Chrome (Mt)	106,767	419,486
Nickel (Mt)	4089	4421
Coal (Mt)	450,539	374,753

Most mineral commodities recorded negative growth during the first quarter of 2020 with platinum group metals, diamond and coal being the only major products representing positive growth. The main reasons for negative growth include challenges faced in accessing foreign currency and fuel, electricity shortages, the Covid-19 lockdown and consequential logistical challenges imposed. Gold production in the first quarter stood at 5722kg compared to 6523kg for the same period in 2019. This represents a 12% decline in production against a forecast growth of 16% in 2020 as enshrined in the Transitional Stabilization Programme (TSP). This negative growth is being experienced at a time when there are favourable international mineral prices for most mineral commodities.

Government Stimulates growth

Responding to distress signals from the mining industry amid the effects of the coronavirus, the Reserve Bank has cut its main lending rate to 25% from 35% and set a fixed exchange rate as part of measures to support the economy. The rate was fixed at 25 Zimbabwe Dollars to the US Dollar, the same rate as on the official interbank market. The Chamber of Mines had warned that production could fall 60% in the second quarter due to the impact of coronavirus.

Also in an effort to strengthen the industry, Fidelity Printers and Refineries (FPR), a subsidiary of the Reserve Bank of Zimbabwe, has reviewed the payment structure for delivered gold. Small-scale miners can now retain all their earnings in US Dollars while larger producers are permitted to keep 70% of their receipts in US Dollars. Until now gold miners kept 55% of their earnings in USD. Smaller producers will be paid USD45 per gram while production from larger producers will be pegged at the London Bullion price.

Muzarabani oil and gas exploration progress

Much attention is focussed on news from Muzarabani where Invictus Energy, the Australian Stock Exchange-listed company (ASX) is conducting exploration for hydrocarbons. Positive results from this could turn Zimbabwe into a net exporter of energy. The company has already recorded significant milestones towards the assessment of gas and oil from fresh tests and evaluation of secondary data first gathered by Mobil in the 1990s. Invictus is currently engaged with Government in negotiations for a Production Sharing Agreement. It appears the company is looking for guarantees

for a stable and predictable operating environment in the event of the hydrocarbons being found. Drilling could be risky without such guarantees.

Great Dyke Investments (GDI): Darwendale platinum project progress

The project, a 50:50 partnership between Afromet JSC, which is 100% owned by Russia's Vi Holdings, and Kuda Tagwirei's Landela Mining Ventures, is reported to be progressing well. A high-powered delegation including the Minister of Mines and Mining Development, Winston Chitando, Minister of Finance and Economic Development, Mthuli Ncube, and Provincial Minister for Mashonaland West, Mary Mliswa, recently toured the project, and were impressed by the progress, which they said was within the agreed timelines. This follows the official commencement of mine construction symbolised by the cutting of a decline box in January 2020. The first phase is expected to cost US$500 million, targeting annual output of 280,000 ounces of platinum group metals and gold.

Progress at Bravura

Bravura, an exploration company owned by Nigerian billionaire Benedict Peters, was in 2019 awarded access to develop the Serui PGM concession on the Great Dyke near Selous. The area was previously explored by Zimari, a JV between Amari and the ZMDC. Judging by the personnel already employed by the company, the visibility of 4 x 4 vehicles roaming the streets, and donations made by the company towards fighting the spread of coronavirus, one can only speculate that something is happening on the ground. We will keep monitoring progress.

Progress at Sengwa at last?

After failing to secure funding from traditional Western funders for building a power station at Sengwa since 2010, when RioZim was granted an independent power producer's licence, the company has reported that it will build the plant with China Gezhouba Group Corp. The Industrial and Commercial Bank of China has given a formal expression of interest in the project and is negotiating with Sinosure to cover country risk insurance costs. The plant will ultimately be constructed in four phases of 700 MW each to reach a total power output of 2800 MW.

Although the development would be good for the economy of Zimbabwe, the proposed construction is coming under increased pressure from a network of local, regional and global civil society organisations who have called on RioZim and the government to abandon the project citing climate change concerns and the plant's expected detrimental impacts on locals. It remains to be seen if the Chinese will withstand the pressure brought upon them to abandon the project.

Landela Investment (Pvt) Ltd, an answer to indigenization of the Mining Industry?

The name Landela is increasingly becoming conspicuous in local mining circles. Ownership of Landela has largely remained a secret, but business tycoon Kudakwashe Tagwirei, who has vast business interests in the fuel and energy sectors, is linked to the investment vehicle. Landela Mining Ventures is the new joint venture partner in the Russian-led Darwendale platinum mine project, which has also roped in former Impala Platinum chief executive David Brown. The company announced that Landela and Afromet JSC now have equal 50% stakes in the project. Afromet JSC is 100% owned by Russia's investment and industrial group Vi Holding, which has spearheaded the Darwendale project since its inception in 2013.

Government through the Zimbabwe Mining Development Corporation (ZMDC) is also said to have partnered Landela Investment on a joint venture agreement to mine ZMDC gold mines at Sabi, Jena, Elvington and Golden Kopje. By clearing all debts accrued by the gold mines and recapitalization to the tune of US$178 million, Landela Investment will assume an 85% stake in the deal while ZMDC retains 15%.

With rumours that Landela has also taken over Bindura Nickel Corporation and Metallon Gold's Shamva and Mazowe mines, there is no doubt that the company will be a major player in Zimbabwe's mining arena for many years to come.

Could this move be the answer to the controversial indigenization policy of the mining industry?

SEG Timothy Nutt Memorial Fund
(Up to US$1500.00 available for 2018)

This fund will be available to provide financial support for geology students and young economic geologists located in Zimbabwe or in southern Africa with ties to Zimbabwe. The fund may be used to support SEG student chapter activities, travel to meetings, field trips, for research or study grants, technical lectures or any other activities approved by the SEG Regional Vice President for Africa.

Strong preference will be given to those applicants who are SEG Student Members.

To become an SEG Student member visit www.segweb.org/join

Applicants must describe what the project is, why the research is important and how it is to be done.

An estimate of expenses for the project must be included with the application.

Grants are expected to be fully utilized by April 30 following the calendar year in which they are awarded / dispersed. .

Grant recipients are required to provide a year-end accounting of how the money was spent together with a suitable progress report or final abstract.

A 2018 Research Grant application form may be downloaded from
www.segweb.org/StudentResearchGrants

Student Research Grants Committee c/o Assistant for Student Affairs, Society of Economic Geologists Foundation 7811 Shaffer Parkway, Littleton, CO 80127-3732 USA

Phone: +1.720.981.7882/Fax: +1.720.981.7874

GSZ Research and Development Fund

Enquiries relating to the distribution of funds through this facility should be made through the standing Chairperson.

Conferences

Geological Society of Zimbabwe

Summer Symposium 2020

Friday 27th November 2020

Department of Geology, UZ

The summer symposium will be held in November this year.

We are starting to allocate speaking slots. If you would like to present, please let us know (andrewdutoitzim@gmail.com). We welcome presentations on a broad range of subjects of general interest to Geologists.

Please put this date in your diary now

12th International Kimberlite Conference

30 years of diamonds in Canada

16th – 20th August 2021

Yellowknife, Canada

secretariat@12ikc.ca

GEOLOGICAL SOCIETY OF ZIMBABWE: CONTACT DETAILS OF MEMBERS OF THE EXECUTIVE COMMITTEE FOR 2020

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Institutional Membership, 2020

Bruker RSA

Chamber of Mines of Zimbabwe

Freda Rebecca Mine

Metallon Gold

Mimosa Mining Company (Pvt) Ltd

Murowa Diamonds (Pvt) Limited

New Dawn Mining

Optimum Drilling

Prospect Resources

RioZim Limited

Samrec Vermiculite Zimbabwe (Pvt) Limited

Sandvik

SMC Drilling

Trojan Nickel Mine

University of Zimbabwe Geology Department

Unki Mines (Pvt) Limited

Vast Resources

Zimbabwe Geological Survey

Zimbabwe Mining Development Corporation

Zimbabwe Mining Investments

Zimbabwe Platinum Mines Limited