Geological Society of Zimbabwe

Newsletter

October 2021 No. 3 of 3 of 2021

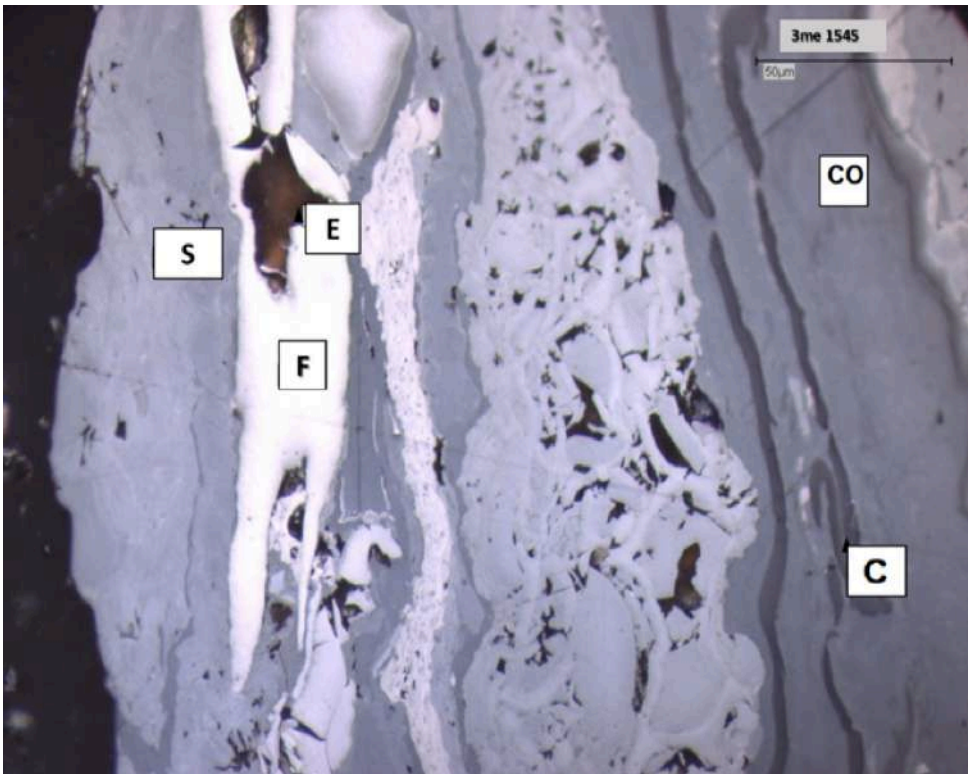

Plate A: Part of Sample SME1545 showing collotelinite (co) and cutinite (c) as well as fusinite, semifusenite and liptinite macerals. See *Oliver Maponga's* thesis abstract

www.geologicalsociety.org.zw

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

Contents

Editorial

Well, here you all are – Issue No. 3 for this year, which heralds our annual Summer Symposium. We hope that as many of you who are able can attend. Details of our speakers with their titles are included under the 'Conference' heading, together with an invite to join an Nyanga field trip to follow. This is the one chance we have to catch up with friends and colleagues, so we encourage you to diarise the event for the 26th November. Also note the "African Exploration and Technology Showcase" Webinar set for 11th and 12th November, for which you may wish to register. Co-hosted by the Geological Society of Zimbabwe, we should be represented by Nevison Chikandiwa.

As always, our regular contributors from institutions around the country have 'come to the party' in order to update us on their various activities. We thank them with sincerity. As editor, I would also like to thank and put on record the help afforded by **Shephard Mabhanga** as the Committee's Newsletter Co-ordinator between editor and contributors.

Thanks are also due to Doctor Oliver Maponga for sharing an abstract of his recent thesis that was submitted to the University of the Witwatersrand. We hope that and encourage those of you who are involved in research projects to share abstracts or updates for our edification. Short notes of interest are always welcome in order to further our broader perspective. To that end, Sharad Master shared his review of our Granite '71 Symposium, which took place in Zimbabwe 50 years ago whilst drawing international acclaim and awareness in our country.

Sadly, there are four obituaries that we record for people who have made considerable contributions in their own ways to the geological understanding of Zimbabwe. These are Chiedza Mugwagwa, Neil Bliss, Arthur Barrie and Morris Viljoen. We salute them all for the heritage they, individually, have passed on to us. Noting the toll that Covid has taken, we urge you all not to relax your guard and to remain cautious in these times.

There has been a recent initiative to bring interested parties together to encourage support, enthusiasm and outreach in earth science disciplines through a strategy of awareness and education that may reach our children and create the passion and understanding that could result in some following career paths relevant to our own sphere of interest. Your Society is encouraging mentorship from peers, especially towards our student body and for those on various attachments. Your Chairman, Forbes Mugumbate and others are in the process of identifying geological heritage sites that may be promoted for a wider appreciation of the earthly wonders we possess, and thus help preserve such locations for posterity. The new group may initially focus on outreach through palaeontology by way of support via the National Museums' educational outreach programme and by other means. Much of this is in the 'boiling pot', but watch this space for developments, and feel free to make your own suggestions. Dr Wendy Taylor of Arizona and UCT has spearheaded an initiative to take puppet and TV shows to children in the Cape. Puppet characters Thandi and her dog Oogies are making exciting forays into the world of fossils. Wendy has introduced her initiative in a guest editorial published in the GSSA's September Geobulletin issue, which you may wish to read by referring to the GSSA Website.
https://gssa.pub/gb/content/2021/gb_v64n3_september-2021_archive.pdf
Tim Broderick

Chairperson's Chat

Renias Tirivabaya

Renias Tirivabaya, Chairman

Colleagues, I hope I find you in good health during this Covid environment as I welcome you to our October Newsletter. May I take this opportunity to thank our contributors and editorial team for giving us the newsletter always and on time.

We continue to strive to keep engaging with you, the Membership, as we focus on knowledge sharing and skills development. We thus have been able to hold very interesting talks on various topics of interest to geologists since the last issue of this Newsletter. Some of the topics covered consider disaster management planning, predictive modelling of orogenic gold mineralization, drones application in mining, granite intrusion and gold mineralization, and the post-Karoo Mutandahwe Igneous Complex with its potential for Climax-type porphyry molybdenum deposition. I take pride in the quality of the work that is being shared by our colleagues from the Society. I urge you all to move a step further and to publish some of this work on the geology of our country. It is high time we continue to tell our own geological story.

Some suggested geoheritage sites around Zimbabwe have been identified and a list has been drawn up to be shared with the Membership and allow for further suggested geological locations to be considered for preservation and which may be documented in a popular outreach programme.

Our mining industry has started to see some activity as various projects take off. We are seeing a rise in the advertisements seeking geologists with various levels of experience. This, indeed, is a welcome development. We continue to be hopeful that, with a continued decline in the incidence of Covid cases globally, we will see most of the EPOs recently granted start with their much needed exploration programmes.

Our institutions, including the University of Zimbabwe, Midlands State University and Zimbabwe School of Mines, continue to train students in the geosciences, but with increased enrolment, there is a stretched demand for the much needed industrial attachment places. I therefore ask those of our Membership who are able to influence

decisions, to assist in the approval of student placement. It is these students who are the future of geoscience, so let us invest in them.

We were able to put the proposed ethics and disciplinary codes up for your scrutiny through a Monkey Survey, and I am glad to report that the majority of our Members voted in support of the two codes and the need for professional registration. This action followed an AGM resolution requesting that a referendum be conducted. The sub-committee has resumed their engagement with relevant stakeholders to ensure that the milestones for professional registration and regulation are achieved.

November is around the corner and, barring any Covid disruptions, our traditional annual symposium will take place on 26th November 2021 at the University of Zimbabwe. A great line up of speakers with a variety of topics has been assembled. I take this opportunity to invite you to this year's Summer Symposium. This is the one time that we can achieve a meaningful reunion amidst prevailing Covid-induced restrictions.

Colleagues and Friends, I urge you to continue to keep safe, and we look forward to meeting up at the Summer Symposium.

God Bless to You All.

Further Profiles of Committee Members
Geological Society of Zimbabwe, 2021

Collins Mwatahwa, Treasurer
Bsc (Hons), MBA, SAIMM

Collins is a professional geologist who has worked in Tanzania, Mozambique and Zimbabwe for Anglo American. He has 28 years of experience in various commodities which include nickel, gold, PGMs, copper, lead, zinc, diamonds and industrial minerals. He has served in various capacities as project geologist, exploration manager and chief geologist. He is currently serving Unki Mines as Planning Manager, and the Geological Society of Zimbabwe for which group he has acted as Honorary Treasurer for more than a decade.

Kudzai Musiwa, Hon. Secretary

MPhil Environmental (UZ) 2004,), BSc Geology (Luton, UK) 1993

Kudzai Musiwa holds a B. Tech. degree in Geology from Luton (1993), a post-grad dipMex from ITC in The Netherlands (1996) and a post-grad Certificate from Graz in Austria. He was awarded his MPhil degree in Environmental Science degree from UZ in 2004 and his PhD in Geological Sciences in 2012. He worked as a geological technician from 1983 to 2005 in the Geology Department at UZ, then as lecturer in Mining Environment and Research Methods in the Department of Mining and Metallurgical Engineering, UZ, being Chairman of the Mining and Metallurgical Engineering Department from 2006 to 2020. He has supervised undergraduate projects and has consulted on numerous mining projects, has published in refereed journals and has presented conference papers. His research interests are environmental geochemistry, exploration geology and mineral processing.

Kudzi takes on consultancy work through Musiwa Environmental Services (Pvt) Ltd.

He has been a consistent member of the GSZ Committee since 2004 in which he has served as the Honorary Secretary to the Society.

Join the Geological Society of Zimbabwe Facebook Group

Steven Duma, Student Mentorship

TERTIARY EDUCATION:
B.Sc. (Hons). 1998. Geology, University of Zimbabwe – Harare NUST – Earth Sciences Program – Robin T. Mashingaidze …….. 2

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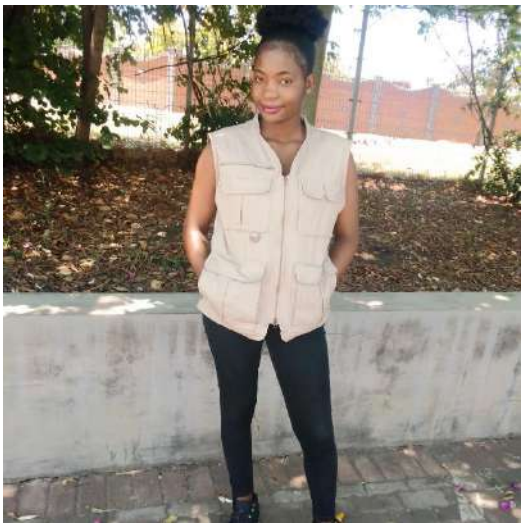
- B.Sc 1997. Geology, University of Zimbabwe – Harare

PROFESSIONAL AFFILIATIONS:

- Pr. Sci Nat. - Geology
- Australian Institute of Mining and Metallurgy (AusIMM) - Member
- Geological Society of South Africa (GSSA) - Member
- Geological Society of Zimbabwe (GSZ) – Member and Past Chairman

SUMMARY OF EXPERIENCE:

Company:		From:	To:	Years:	Position:	Au:	Ni:	Cu:	PGM:	Other:
ZIMPLATS	Zimbabwe	01/15	Present	7	Mineral Resources Manager	7	7	7	7	
Discovery Metals Ltd	Botswana	10/14	01/15	0.3	Manager - Technical Services		0.3	0.3		
Mupane Gold Ltd	Botswana	04/12	10/14	2.8	Mineral Resources Manager	2.8				
Nordgold (a)	Guinea	10/11	04/12	0.7	Mining Manager	0.7				
Nordgold (b)	Guinea	06/10	10/11	1.3	Geology Supt.	1.3				
IMPLATS	South Africa	11/06	06/10	3.7	Snr. Geologist	3.7	3.7	3.7	3.7	
ZIMPLATS	Zimbabwe	10/03	11/06	3.1	Snr. Geologist	3.1	3.1	3.1	3.1	
Casmyn Mining	Zimbabwe	12/02	10/03	0.9	Project Geologist	0.9	0.9	0.9		
Dube and Associates	DRC	08/01	12/02	1.4	Project Geologist					1.4 (Dia)
Rio Tinto	Zimbabwe	05/01	08/01	0.3	Geologist					0.3 (Dia)
Delta Gold	Zimbabwe	11/98	05/01	2.5	Field Geologist	2.5	2.5	2.5		
Totals				**24**		**22**	**17.5**	**17.5**	**13.8**	**1.7**



Miriam Matsanga

Miriam Matsanga holds a BSc (Hons) degree in Geology from the University of Zimbabwe (2019). She is an enthusiastic young geologist who volunteered and worked for several organizations soon after graduating. Miriam is an expert in borehole drilling and has worked as a junior exploration geologist and teaching assistant at Midlands State University. She is the founder of the MSU Geology Student Society. Miriam recently joined Anglo American where she is specializing in Geometallurgy. She joined the GSZ executive committee in 2021 and is the youngest member ever to be in the executive committee.

Articles and Reports

A Geometallurgical Characterisation of the Hwange Coalfield: How does coal formation affect coal Exploitation?

Oliver Josiah Maponga[a+c]

Supervisors: Prof. R.M.S. Falcon[a] , Prof. N.J. Wagner[b] , Dr S. Bada[a]

Affiliation: [a] School of Chemical and Metallurgical Engineering, University of the Witwatersrand, South Africa; [b] Department of Geology, University of Johannesburg, South Africa, [c] Department of Chemistry and Earth Sciences, University of Zimbabwe, Zimbabwe.

Degree: PhD in Chemistry and Metallurgical Engineering (Wits University)

ABSTRACT

The Hwange Colliery, located in northwest Zimbabwe, hosts significant coal resources. The mine produces thermal coal for power generation, as well as some of southern Africa's best coking and blend coking coals.

However, since the commissioning of two mining blocks as the Chaba Opencast and 3 Main Underground Mine in 2005, certain anomalies, which have technological implications, have arisen. There is therefore a need to establish the reasons for these anomalies. Questions posed include: a). Why does the Chaba coal reserve, previously classified as coking coal based on cut-offs of a cumulative ash maximum of 15% and cumulative volatile matter minimum of 23.5%, fail to produce coking coal in the plant? and b). Why do good coking properties of coal produced in some areas of Hwange Colliery not respond well to conventional coking tests? A compelling need arose to characterise the Hwange coals and estimate the tonnages of mineable reserves for each of the three coal categories: namely thermal coal, general purpose coal, and coking coal, thus ensuring Hwange Colliery's preparedness to meet the coal quality demands for a variety of users.

Historical geological data generated by previous exploration programmes and new coal samples representative of the future mining areas and those for anomalous coals were examined. Coal samples were collected from Hwange Colliery's Chaba and 3 Main Underground mines and key analyses and tests were conducted and included proximate, ultimate and total sulphur analyses for basic characterisation; petrographic analyses to determine coal rank, maceral composition and mineral matter in the coal; XRF analysis to determine the ash oxide composition; XRD to determine mineral composition; as well as combustion prediction and coking tests.

The geological mapping exercise conducted as part of the study revealed that faulting is dominantly listric-normal and increases in intensity westwards. The main coal seam becomes progressively deeper westwards at Hwange. The footwall of the seam plunges from 850m above-sea-level in the northeast, to approximately 490m above sea-level in the south-west. Localised topographic palaeo-highs and lows occur within the coalfield. The coal seam is significantly thicker in the pre-coal-forming, topographically low-lying areas, but thins out over topographic highs.

Proximate and petrographic analyses of the coal samples revealed that a low-ash, vitrinite-rich coal horizon occurs close to or at the base of the Main Seam, and that the overlying coals that pass progressively up through the seam become richer in ash and inertinite. Based on this sequence, it is suggested that the maceral profile reflects an initially wet swamp environment in early coal-forming times that was progressively replaced by increasingly drier forest swamps. The low-ash basal horizon is significantly thicker in the topographic depressions (up to 6m) but is thinner (1-2m) where the seam abuts over or against a topographic high, namely, in locations in excess of 600m above-sea-level. Hwange coals are Medium Rank B and C bituminous coal. No heat effect from intrusive sills and dykes has been observed, nor is there any regional trend in rank. The mineral matter comprises silicates, sulphides and carbonates, with clay the dominant mineral, particularly towards the top of the seam. Combustion tests reveal that the vitrinite-rich basal samples devolatise at lower temperatures; have lower peak temperatures; and burn out more rapidly than the inertinite-rich samples found higher in the seam.

With regard to coking attributes, the study revealed that volatile matter is not a good indicator of coking properties in coal. Some Hwange coals have high volatile matter contents, but possess a free swelling index lower than the 3.5, the minimum for most coking coals. Other Hwange coals possess relatively low volatile matter contents and

swell to some extent. Proximate analyses alone are, therefore, insufficient to indicate the coking capacity in these coals. Of all the coals tested, only the lowest section of the Main Seam (1m) in the Chaba Opencast location yielded a sufficiently high vitrinite content and free swelling index to qualify as a coking coal. The samples higher up in the seam, although high in volatile matter (23.5% and above), have low free swelling indices and vitrinite contents that are insufficiently high to qualify as coking coal.

The reason for the anomalous swelling capacity in coals that showed good swell, but low volatile matter content, appears to be associated with the presence of exudatinite in association with reactive semi-fusinite, fusinite and secretinite. Exudatinite, is a high volatile, viscous material that would have emanated from liptinite and vitrinite at specific levels of rank during coalification, and as a consequence of regional heating. Coals that have high volatiles, but do not show swelling capacity, simply have vitrinite contents that are too low in proportion to provide any degree of swelling or other coking properties.

Plates A (frontispiece) to D present some of the macerals and mineral phases encountered in the Hwange coals during the study.

Based on the data generated and the resource and reserve calculations undertaken during the study, it is estimated that the remaining life of mine for the high-grade coking coal could supply the metallurgical industry for up to 43 years. In addition, supply of thermal coal for power generation, as well as for coal used in the agricultural, cement and brick making industries could be sustained for another 39 years.

Plate B: Photomicrograph of 3ME sample code 1549 containing exudatinite (E) held in secretinite (Se) vesicles. The exudatinite is assumed to have migrated through the coal mass after coalification.

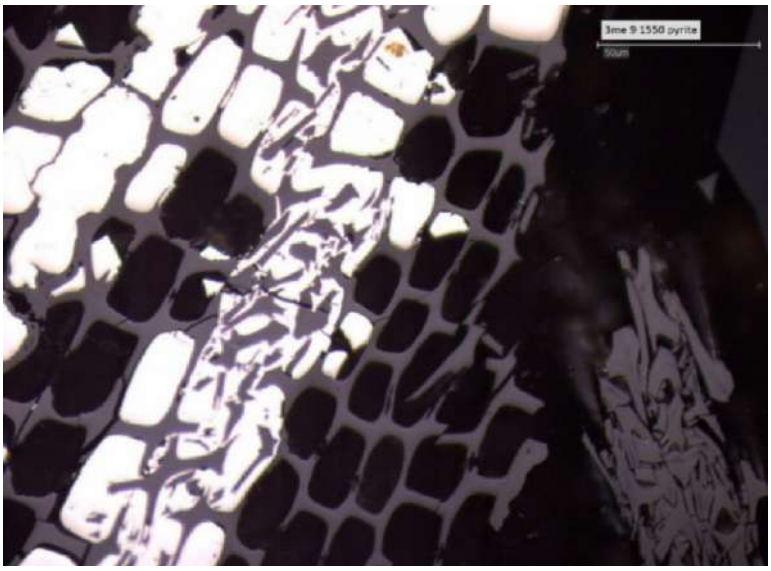


Plate C: Pyrite in fusinite honeycomb structure in 3ME sample code1550. Pyrite is infilling cell lumens with some lumens appearing empty. There are two possibilities: either the pyrite did not accumulate in all cavities, or some of the pyrite has been subsequently leached out.

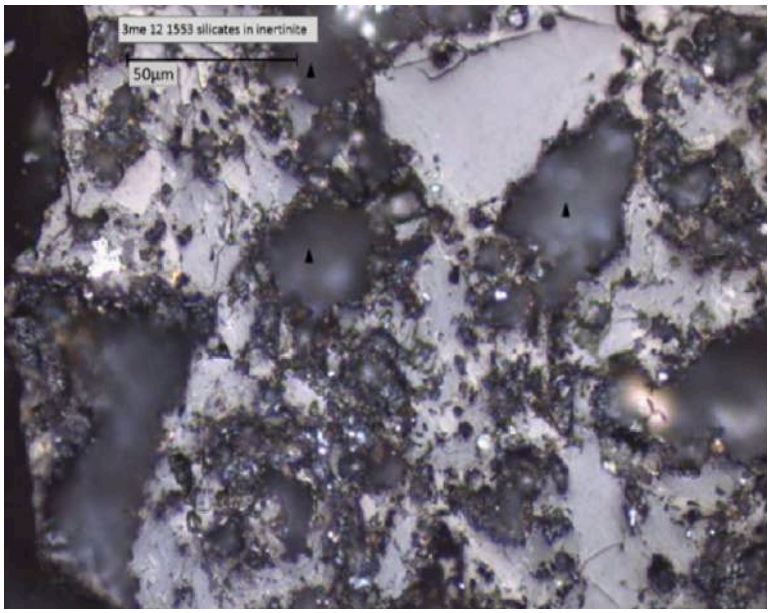


Plate D: A photomicrograph of 3ME sample 1553 showing quartz and semifusinite with inertodetrinite (silicates within inertinite).

Anniversaries – Symposium 50 years ago

"SYMPOSIUM ON GRANITES, GNEISSES AND RELATED ROCKS" (SALISBURY, RHODESIA, 1971)

Sharad Master
(Reprinted with permission)

Fifty years ago, the landlocked central African country of Zimbabwe was a very different place, then called Rhodesia, with its capital Salisbury (now Harare). It had been colonized by British settlers since 1890, and had been part of the Central African Federation of Southern and Northern Rhodesia and Nyasaland, in the late 1950s. During the early 1960s, a wave of decolonization swept through Africa, African Nationalism was on the rise, the Federation broke up, and Northern Rhodesia and Nyasaland gained independence as Zambia and Malawi respectively. In 1965 a group of White settlers in what was now named "Rhodesia" passed a Unilateral Declaration of Independence (UDI) from Britain, and continued to rule as a minority, excluding the vast majority of the population from the right to run their own country. Britain, and much of the rest of the world, declared sanctions against the rebel colony of Rhodesia. But the country was bordered by sympathetic countries: on the east by Mozambique, then still under Portuguese colonial rule, and to the south by South Africa, then ruled by a minority White Apartheid regime.

It was under these conditions, that the Rhodesian Branch of the Geological Society of South Africa (GSSA) [Founded 1960], under its organizing secretary Euen Morrison [with Convener, Albert Phaup as assisted by James Wilson] organized "Granite '71", properly entitled "Symposium on Granites, Gneisses and Related Rocks" (Gibson, 1973). The Symposium was held over three weeks, starting on 30 August 1971, at the University of Rhodesia in Salisbury (which was originally formed as a constituent college of the University of London, with Elizabeth, the Queen Mother, as its first Chancellor).

Geologically, much of Zimbabwe consists of an exposed Archaean Shield, comprising granites with numerous greenstone belts, similar to the Canadian Shield. There are Archaean, Palaeoproterozoic and Neoproterozoic mobile belts surrounding the central Zimbabwe Craton. Part of the Craton is covered with Proterozoic and Phanerozoic sequences. Systematic geological mapping in the country started with the establishment of the Geological Survey of Southern Rhodesia in 1910. Most of the Archaean greenstone belts in the country have been covered by maps at a scale of 1:100 000. The early mapping was compiled onto 1:1 million-scale geological maps, which showed that vast areas of the Shield are underlain by granites and gneisses. Granites are associated with mineralized Sn, W, Li and Ta-Nb pegmatites, and mesothermal gold deposits. Apart from hosting the 7th GSSA Geocongress in 1964, the first symposium organized by the Rhodesian Branch was on the Rhodesia Basement Complex (which included the

economically important Au and Ni-bearing greenstone belts) was staged in 1967. Granite ’71 was the second symposium of this branch.

The Granite ’71 Symposium was attended by about 250 geologists, from Rhodesia, Zambia, South Africa, Swaziland (now Eswatini), Mozambique, UK, USA, Australia, Germany, The Netherlands and Greenland (Denmark). A total of 57 papers were delivered over 5 days. There were four field excursions, which were run pre-congress and were repeated post-congress. As was usual in those days of colonialism and the early post-colonial period in Africa, there were no trained indigenous black African geoscientists in Southern Africa, and the conference delegates list was dominated by White males, with the lone female geologist to present a paper there being Dr Linley Lister (daughter of the famous geomorphologist Lester King, and a well-known geomorphologist herself). Dr Lister edited the proceedings volume of the symposium, which was published by the Geological Society of South Africa in 1973 (Lister, 1973). Well known geologists who participated in this conference included Jim Wilson, Keith Viewing, Linley Lister, Clive Stowe, Bill Garlick, Felix Mendelsohn, Roy Miller, Tom Clifford, Carl Anhaeusser, Don Hunter, Alfred Kröner, John Sutton, Bill Fyfe, Karl Mehnert and Brian Windley.

The Granite ’71 Symposium was one of the first international conferences devoted entirely to granites, gneisses and related rocks. Most of the papers concerned Archaean granitoids, with an emphasis on those from the Rhodesian Archaean Craton (now known as the Zimbabwe Craton). Other cratonic regions covered were the Kaapvaal Craton of South Africa and Swaziland, the Canadian Shield, the Indian Shield, and the North Atlantic Shield of West Greenland. Gneissic rocks covered included those from the Namaqua, Limpopo, Magondi and Ubendian belts of southern and central Africa. Most of the papers dealt with field relations and petrography of granites and gneisses, a few dealt with geochemistry, geochronology, lithium pegmatite mineralogy, geomorphology, and engineering aspects. A couple of papers dealt with Cu and Cu-Ni mineralization in mafic rocks intruded into granitoids. The German school of metamorphic petrology was well represented by Karl Mehnert, who insisted on an anatectic origin for migmatites, and R. Emmerman and E. Rein who wrote about the origin of granites in the Black Forest of Germany forming through anatexis and differentiation.

The coach tours — a lunch stop on the banks of the Tokwe River. — Picture: Ian Robertson.

In the early 1970's the implications of the Plate Tectonics revolution in Earth Sciences had not yet filtered through into the world of granite studies in basement rocks, and the papers in the proceedings volume (Lister, 1973) have no references to tectonic settings, geochemical classification schemes, and detailed petrogenetic studies with which modern granite studies are replete. With its emphasis on Archaean granitoids, the Granite '71 Symposium was the forerunner of a symposia series such as the International Archaean Symposium, and the Hutton Symposium on the Origin of Granites and Related Rocks.

To commemorate this international conference, the Rhodesian Post Office issued a series of four commemorative postage stamps, which are reproduced here (Rhodesianstudycircle). They depict the following:- (1) 2.5c stamp: a hand-specimen of porphyritic granite, from Pomona Quarry on the outskirts of Salisbury (Harare); (2) 7.5c stamp: an optic axis figure of biaxial mineral muscovite under a polarising petrological microscope; (3) 15c stamp: appearance of a granite in thin section under a petrological microscope; (4) 25c stamp: a simplified geological map of Rhodesia (Zimbabwe), showing granitoids in pink, greenstone belts in green, the Great Dyke layered complex (black), and post-Archaean cover rocks (grey).

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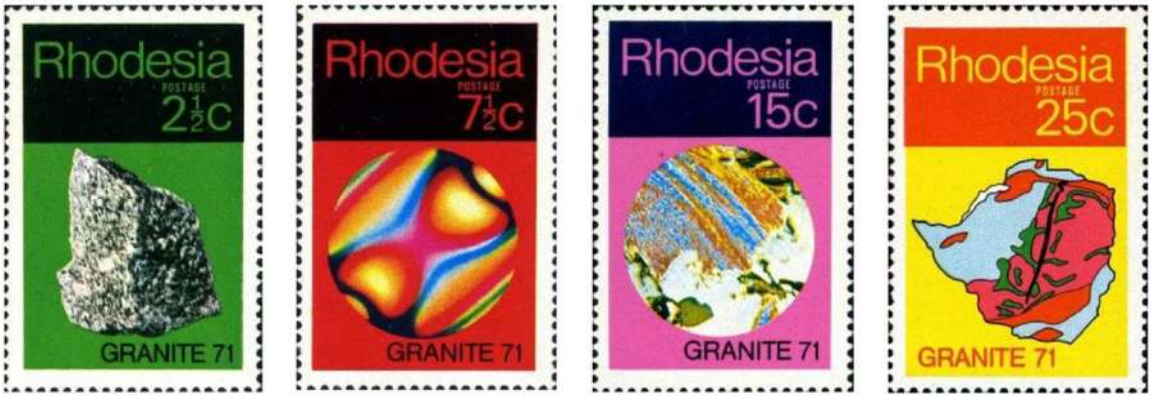

A year after the Granite '71 Symposium, a civil war escalated in Rhodesia, leading eventually to the formation of the new independent state of Zimbabwe, which was welcomed back into the world. Since independence in 1980, Zimbabwe has hosted numerous international geological conferences. It has an active Geological Society which hosts an annual conference and field excursion, and other lectures (http://www.geologicalsociety.org.zw).

Further Reading

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Posted IUGS Website / INHIGEO Website Anniversaries September 2021
IUGS E-Bulletin Issue 178, September 2021. http://www.inhigeo.com/anniversaries/MasterS_Granite.pdf

Dr Sharad Master
Vice-President for Africa: IUGS International Commission on the History of Geological Sciences (INHIGEO).

School of Geosciences, University of the Witwatersrand, Johannesburg, South Africa
Email: Sharad.master@wits.ac.za

Obituaries

Chiedza Mugwagwa

24th March 1971 to 9th June 2021

We wish a sad farewell to one of the prominent Zimbabwe women geologists, but we remember her life with pride.

Chiedza had the excellent grounding that so many Zimbabwe geologists had in graduating from the dynamic University of Zimbabwe Geology Department at the end of 1994. During her working career, she furthered her studies acquiring an MBA in 2010 and an MSc degree in GIS from the University of Salzburg, Austria in 2016.

Personally, I first met Chiedza when she was the resource geologist at Blanket Mine in 1999. She was a driven young lady showing early leadership qualities in getting the mine into the digital age and spearheading all in the Technical Services Department to become conversant with 3D modelling. This legacy endures today with Blanket now taking its place as a leading gold producer in Zimbabwe. From Blanket, Chiedza went onto work with Metallon Gold for the next 10 years, spending time at both Shamva and Mazowe mines where she helped to develop their spectacular gold resources. Chiedza then spent a short time at Zimplats, Ngezi before migrating to South Africa in 2008 for the next few years, where she was a consultant for Maxwell Geological Services. They specialised in implementing DataShed Mining Software at various sites throughout Africa. Further travel at this time saw Chiedza working in Tanzania and the USA for Great Basin Gold before she returned to Zimbabwe in 2014 as Group Resource Manager for Metallon Gold, rising to Technical Services Manager.

In 2019 Chiedza joined Breckridge Investements as Chief Geologist for their Pickstone Mine, Chegutu. She brought in an ethos that included vast resource modelling professionalism, attention to detail and a willingness to assist at all times. Her sense of humour allowed nothing to keep her down for long, and the she will be sorely missed by all at the mine.

Chiedza leaves 2 daughters and a lasting geological legacy behind.

Gayle Hanssen

Neil Welbourne Bliss 1932 – 2021

It is with great sadness that the family of Neil Welbourne Bliss, aged 88, of Bedford, Nova Scotia announces his passing on 29th May 2021 at Victoria General in Halifax.

Born in London, England on 3rd September 1932, Neil attended Kent College (1941-1951) in Canterbury and was evacuated with the school to Cornwall during the War. Neil captained the school's 1st XV rugby team and athletics team and rose to be Head Boy in his final year before joining the Royal Air Force where he served as an air navigator with 202 Squadron, Coastal Command. Neil went on to complete his BA degree in Geology at John's College, Cambridge University (1953-56). Known for his athletic abilities, Neil was a member of the Cambridge Athletic Club, and he broke the University record for the 440 yard dash and earned his full colours in 1954.

Neil moved to Rhodesia to work with the Rhodesian Geological Survey from 1959 to 1969 with a sabbatical in the middle to attend and complete his MSc in Geology at McGill University in Montreal, where he met and married his late wife Judy in 1965. Neil and family returned to Montreal in 1969 where he completed a PhD at McGill and worked for Alcan International for 24 years including 18 as their Chief Geologist. It was here he became well recognized and respected around the world for his knowledge and understanding of bauxite geology in the aluminium production process.

Neil passed on his love of the outdoors and the mountains to his children, including the lesson that on the mountains, as in life, the summit was always "over the next hill".

His passion for sports also lives on, as we will continue to watch The Boat Race, cricket and rugby matches with his enthusiasm, and with Scotland vs England rugby allegiances split amongst the family, proudly mimicking Neil's ancestry.

Neil is survived by his children, Bryan, Ian (Christine), Colin and Kathryn (Scott); his grandchildren, William (Kyrstin) Tyler, Samantha, and Crystal (Michel); and his great-grandchildren, Hunter, and Jack.

He was predeceased by his loving wife, Judy; his parents, William, and Ann; and his eldest daughter, Jenny.

A Celebration of Neil and Judy's lives will be held at a future date when the pandemic restrictions allow for such events.

Ian Bliss and the Bliss Family

Neil Bliss - Zimbabwe Bibliography

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Compiled by Tim Broderick

Arthur Harold Barrie
30th April 1931 – 5th August 2021

Lin Barrie

Arthur Barrie was born on 30th April 1931 in Bulawayo and grew up on the family ranch near Lonely Mine where his love of wild, open spaces was nurtured. Having been schooled at Milton High, Arthur did not go to an art school but came to Salisbury and joined the Geological Survey Drawing Office staff on 1st August 1949 where he was to spend 41 years and 120 days in loyal service, retiring on his 60th birthday, 30th April 1991, as Chief Cartographer. His mastery in the art of compiling and producing hand-drawn geological maps resulted in a legacy that includes production of the following maps:

1951 - Concession and Msonneddi, Bulletin No. 41.
1956 - Odzi, Gold Belt, Bulletin No. 45.
1961 - Buchwa Iron Ore Deposits, Belingwe District, Bulletin No. 53.
1964 - Cashel, Melsetter and Chipinga Areas, Bulletin No. 60.
1973 - Magondi, Lomagundi, Hartley and Gatooma Districts, Bulletin No. 65.
1979 - Mafungabusi, Bulletin No. 81.
1980 - Dett, Bulletin No. 85.

He also drew the text figures to accompany:

1970 - Que Que, Bulletin No. 67.
1976 - Battlefields, Gatooma District, Bulletin No. 76
1978 - Belingwe-Shabani Schist Belt, Bulletin No. 83.

As well as assisting with and guiding the production of many other maps through their editorial and printing processes, including that for Bulletin No. 96, West of Guruve, during a visit to Germany in 1989.

Arthur Barrie became the mentor and inspiration to numerous aspiring cartographers, a host of geologists, both young and old, and by touching the lives and careers of so many through his dedication, attentiveness, precision and quiet advice. This was so much so that his 90th Birthday on 30th April 2021 invited a deluge of messages from former colleagues and friends, each expressing their individual gratitude and memories in some small way. This was a fitting celebration for a man who had found solace in his love for the wild, his birding and gardening. Arthur Barrie, through his pen and ink, has made a lasting contribution to the heritage of Zimbabwe.

Tim Broderick

Morris James Viljoen

21 July 1940 to 19 August 2021

Sadly we record the loss to the 'World of Geology' and to that of southern Africa in particular of Prof Morris Viljoen, who died of Covid-related complications in August. His name, together with his twin brother, Richard, and Carl Anhaeusser, is synonymous with our understanding of the Barberton Mountain Land and the name 'komatiite'. A trio who have always been supportive of our Geological Society and the greenstone belt geology of Zimbabwe deserve our collective recognition.

"After completing their PhD research, the twins were approached in 1969 by JCI to start a Fundamental Geological Research Unit in the company. Morris and his brother began assessing the economic potential of large parts of southern Africa for base and precious metal mineralisation. Between 1969 and 1977, Morris held the position of Senior Research Geologist in JCI and worked on developing geological models for various classes of mineralisation and target generation for mineral exploration. Areas investigated included the Shangani nickel occurrence and Inyati [chrome] in Zimbabwe, the Consolidated Murchison antimony–gold occurrences near Gravelotte, and the copper zone deposits associated with the Matchless amphibolites of the Damara Orogenic Belt in Namibia. Extensive travels in southern African countries, as well as world-wide, were aimed at identifying exploration targets for gold, platinum and antimony, and some of the earliest use of satellite and airborne photographic and thermal imagery were developed by JCI."

Adapted from: Viljoen, R. and Anhaeusser, C.R. 2021. And then there were two—A tribute to the life and times of Morris James Viljoen (1940–2021). *Geol. Soc. S. Afr. Geobulletin,* Vol. 64 (3)(Sept), pp. 46-52.

News

Geology Division: Department of Chemistry and Earth Sciences, University of Zimbabwe

Maideyi Meck

Departmental activities continue at a very low ebb due to the COVID situation. Teaching took place online and exams started in mid-September and will extend into October. The new academic year is expected to start at the end of October.

Three Scholarships in support of Master's degrees were received, two from the UNESCO regional office for Southern Africa and one from Associated Nickel Mines of Zimbabwe. The Department has also been promised scholarship funding for two more students through the mining fraternity.

Members of staff attended various workshops/talks and conferences online.

Co-operation with the University of Tsukuba in Japan continued and Mr Prince Mandingaisa left the department to pursue his PhD studies with them.

The technician responsible for the rock cutting laboratory resigned so the thin section unit is currently closed.

A project was completed, which was part of the Government of Zimbabwe's 100-200 day Programme for the Ministry of Higher and Tertiary Education Innovation Science and Technology Development (MHTESITD) that assisted in establishment of the Zimbabwe National Geospatial and Space Agency (ZINGSA). This was an assessment of the geospatial capability in detecting and quantifying minerals with case studies involving lithium and graphite deposits in Zimbabwe.

The project with UNESCO and the University of Leuven in Belgium on landslide susceptibility in Zimbabwe is ongoing.

Staff Contact details as of October 2021:

Name	Position	Email	Cell Phone	Office Number	Office Phone 024-2303211 (Extension)
Dr P. Mushonga	Chairperson	mushonga777@gmail.com	0774063113	Chemistry	15046
Dr. M.L. Meck	Lecturer	mabvira@science.uz.ac.zw	0772906612	25	15027
Mr. F.B. Mupaya	Lecturer	fbmupaya@gmail.com	0773599433	26	
Dr. O. Maponga	Lecturer	mapongaoliver1954@gmail.com	0772410609		
Mr. G. Kwenda	Lecturer	gkwenda@gmail.com	0772935936		
Mr P. Maketa	Lecturer	geologistmaketa@gmail.com	0777386284		
Mr S. Mabhanga	Lecturer	smabhanga@gmail.com	0783536530		
Mr C. Mhindu	Part time Lecturer	Mhindicharles@yahoo.com	0774460531		

Mrs G. Chipari	Secretary	gchipari@science.uz.ac.zw	0772950681	21A	15032
Mrs E. Hamah	Technician	emhamah@gmail.com	0773924053		
Mr. D. Mupambo	Technician	DIDYMUS@science.uz.ac.zw	0772916652	16	15024
Mr. P. Sena	Technical Assistant	psena@science.uz.ac.zw	0772390026		15193
Ms. S. Gorogodo	Messenger/Cleaner		0772390026		15029

The Mennell Geological Society

2021 President – Tatenda Tendesu

Patron: Fadzanayi Bornwell Mupaya
fbmupaya@gmail.com

GEOLOGICAL REPORT

(SUMMARY OF EVENTS)

This report was written to fulfil the requirement for the first paragraph of article iii of the University of Zimbabwe's Mennell Geological Society constitution, '..... *The Chief is supposed to write reports and submit to the Patron. The Chief should write a minimum of 5 geological reports per each month. If this law is disobeyed, the Chief should be excluded in the office for this abuse of his/her office. The Chief should collect and allocate research Presentation from/to the Mennell Executive and all members……..'.* A summary of events and presentations made between May and September 2021 is given. Due to Covid-19 restrictions, we have not managed to organise any field trips but, according to agreements between the executive and all members, we are planning to arrange a field trip to Chinhoyi so that we may be exposed to the Eldorado Shear Zone, the formation of stalactites and stalagmites under karst conditions and to the Lomagundi stratigraphy in general. Topics presented to the Society are as follows:

May

- The Attitude and Geometry of Geological Structures – *Tatenda Tendesu & Kelvin Dhliwayo*
- Bowen Reaction Series – *Deidre Zvaraya*
- The Great Dyke of Zimbabwe – *Tatenda Tendesu*
- Metamorphic Types – *Deidre Zvaraya*

- Cosmochemistry – *Tatenda Tendesu*
- Pongola Supergroup – *Fainos Nyambira*
- Barberton Supergroup – *Tatenda Tendesu*
- Glaciers – *Tatenda Tendesu*
- Introduction to Inorganic Chemistry – *Tatenda Tendesu*
- Optical Mineralogy – *Tatenda Tendesu*
- Ore Deposit Studies – *Tatenda Tendesu*
- Basin Analysis – *Tatenda Tendesu*

June

- The distinction between Orthogneiss and Paragneiss – *Tatenda Tendesu*
- Hydrothermal Deposits – *Tatenda Tendesu*
- Carbonatites – *Tatenda Tendesu*

July

- The Great Dyke of Zimbabwe - *Kelvin Dhliwayo*
- Geology of the Chinamora Batholith – *Tatenda Tendesu*
- The Belingwe Greenstone Belt – *Tatenda Tendesu*
- Geology at the Freda Rebecca Gold Mine – *Kelvin Dhliwayo*

August/September

- Barberton Stratigraphy – *Ntin & Kelvin Dhliwayo*
- Optics and crystallography – *Deidre Zvaraya*
- The petrographic microscope – *Tatenda Tendesu*
- Mineral Value Chain relating to coal – *Tatenda Tendesu*
- Geochemical normalization and spider diagrams – *Tatenda Tendesu*
- Metamorphism and metamorphic facies – *Tatenda Tendesu*
- Atmophiles, Lithophiles, Chalcophiles, Siderophiles – *Tatenda Tendesu*
- The Greenstone Belts of Zimbabwe – *Tatenda Tendesu*

Puppet Planet main characters, Thandi and her dog Oogies, exploring a fossil Lystrosaurus on their farm in the Karoo.

A glimpse from the children's outreach show, the initiative of Dr Wendy Taylor in Cape Town.

MIDLANDS STATE UNIVERSITY

FACULTY OF ENGINEERING & GEOSCIENCES
ZVISHAVANE CAMPUS

Updates from the Faculty of Engineering & Geosciences

Introduction

Face-to-face teaching and learning resumed at the Midlands State University (MSU) on 6th August 2021 following closure on 30th June as a result of surging Covid-19 infections in Zimbabwe at the time. The reopening was facilitated by the downgrading of the Covid-19 lockdown measures from Level 4 to Level 2. All teaching and learning components, including lectures, laboratory practicals, fieldwork and examinations are being accommodated during the face-to-face stint, with strict observance of Covid-19 protocols.

Of late there have been high staff turnovers attributable to the adverse national economic situation compounded by the ongoing Covid-19 pandemic. This situation is being adequately managed through MSU proactive recruitment drives, and support from the mining industry. Student activities are currently minimal due to their limited on-Campus presence.

Staffing

The Mining Industry leaders who provided staff development mentorships to our junior academic staff from February to May 2021 joined our Faculty as MSU part-time lecturers in July 2021. The four dedicated industry lecturers are Eng. Renias Tirivabaya (Bindura Nickel Corporation, and Chairman of GSZ), Eng. Norman Mukwakwami (World Bank Consultant), Eng. Nevaid Dzimunya (University of Zimbabwe) and Eng. Omberai Mandingaisa (Anglo American, Unki Mines Pvt Ltd). The coming-on-board of these four will go a long way towards ensuring that MSU curricular match the expectations of industry, and that the graduates are industry-ready upon graduation.

New Programmes

The Department of Fuels and Energy Engineering unveiled two new programmes: Bachelor of Engineering Honours in Fuels & Energy Engineering and the Bachelor of Engineering Honours in Electrical & Electronic Engineering. We hope that these programmes, developed in consultation with industry, will continue to attract industry support.

JF Wilson Award

The examination process of the MSU Applied Geology Honours dissertations has started and after departmental scrutiny, one dissertation will be presented to the Geological Society for consideration for the JF Wilson Award.

Student Activities

Due to Covid-19-induced disruptions, MSU geoscience students have not yet completed the formalisation of their geoscience association. A draft constitution for the geoscience association spearheaded by GSZ Committee Member, Ms Miriam Matsanga, who has since left MSU, is yet to be finalised. In its fullness, completion of the process will be championed by the students themselves, with guidance from their department and the Geological Society of Zimbabwe.

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

ZIMBABWE SCHOOL OF MINES

Serving the SADC mining industry

ZSM held a colourful graduation ceremony at the school on 1st October, which saw a total of 166 graduands, 34 of whom were from the Geology Department. Enrolment for 2022 is in progress. The National Diploma in Mining Geology and the Diploma in Mine Geology is on offer to mining cadets who will tackle their course over two years.

The Zimbabwe School of Mines is currently struggling to attach students due to the effects of COVID 19. Several mines reduced the number of students that they are taking whilst others stopped taking attachments at all. This has been done so as to decongest work places as per COVID- 19 guidelines. However, the School is still appealing to mining houses to assist as attachment is an integral part in the training of our students. Mine visits have been difficult to achieve, and this leaves the students with very little exposure to their intended working environment. The department is grateful to Mimosa Mine for their donation of core boxes. We continue to appeal for appropriate intervention from other mine houses to try and give students as much hands-on practice as is possible under prevailing circumstances.

Submitted by Fyrence Ndebele

MANICALAND STATE UNIVERSITY OF APPLIED SCIENCES

Stair Guthrie Road
Mutare
Zimbabwe

P. Bag 7001
Mutare
Tel: +263(20)2067572

Department of Mining and Processing Engineering

The Department has been joined by a new assistant lecturer in Geology, Miss H. Chibaya. Lectures progressed well, as the semester began with students attending face-to-face lectures in batches according to the Covid-19 regulations and then continuing with online learning. Face-to-face lectures resumed for first and final year students on 9th September and examination dates for these classes have been set. The rest of the students resumed physical contact on 27th September and their examination are ongoing during October. This will bring us to the end of the semester.

Departmental staff have started research on the possible occurrence of construction aggregates in the Headlands area.

Industrial attachment continues to be an essential part of the students' learning. We are therefore appealing for attachment placements for 22 students within the mining industry.

Contact details

Name	Position	E-mail address	Phone No.
Mr T.F.K. Ngoroyemoto	Chairperson	tapiwa.ngoroyemoto@staff.msuas.ac.zw	+263 773 022 711
Eng T. Nyamagudza	Lecturer	tatenda.nyamagudza@staff.msuas.ac.zw	+263 774 402 227
Dr L. Chipise	Lecturer	liberty.chipise@staff.msuas.ac.zw	
Mr Chewu	Lecturer	chewuxy@yahoo.com	+263 776 460 899
Mr E. Chipfupi	Lecturer	elisha.chipfupi@staff.msuas.ac.zw	+263 772 116 111
Mr P. Munemo	Assistant Lecturer	prosper.munemo@staff.msuas.ac.zw	+263 773 966 036
Miss A.R. Sabao	Assistant Lecturer	ashley.sabao@staff.msuas.ac.zw	+263 719 076 442
Mr D. Runganga	Assistant Lecturer	desire.runganga@staff.msuas.ac.zw	+263 777 523 402
Miss H. Chibaya	Assistant Lecturer	hazel.chibaya@staff.msuas.ac.zw	+263 782 157 528
Dr A. Mamuse	Part-time Lecturer	Antony.mamuse@graduate.curtin.edu.au	
Mr Mutizhe	Part-time Lecturer	bkmutizhe@gmail.com	+263 772 671 928

Contributed By: Hazel Chibaya

Research. Innovation. Sustainable Development.

NUST – DEPARTMENT OF APPLIED PHYSICS

EARTH SCIENCES DEPARTMENT

Contact person: *Robin T. Mashingaidze*
robin.mashingaidze@nust.ac.zw

Unfortunately, we are unable to submit our magazine contribution for this issue. Our apologies for the inconvenience caused. We hope to be back with our regular contribution in the next issue as we need to conform with our Institute's communications policy.

-

Geological Survey Department

STAFFING MATTERS

- Staff movements:
  1. **Lloyd Magombedze**, *Senior Geologist*, has been transferred to Mashonaland Central Mining Province.
  2. **Tapiwa Magidi**, *Senior Geologist*, has been transferred to Mashonaland Central Mining Province.
  3. **Brian Muteta**, *Senior Geologist*, has been promoted to be the substantive Deputy Director, Non-Energy Minerals at Head Office. He was on indefinite secondment to the Ministry's Head Office.

4. **Benedict Ncube**, *Senior Geologist*, has been promoted to be the substantive Deputy Director, Coal and Hydrocarbons at Head Office. He was on indefinite secondment to the Ministry's Head Office.
5. **Vimbai Takawira**, *Senior Geologist*, resigned to pursue greener pastures.
6. **Abenezel Makuvaza**, *Senior Geophysicist*, resigned to pursue greener pastures.
7. **Mangwiro Sibanda**, *Senior Geologist*, has been transferred to the Department from Mashonaland Central Mining Province.

- The Department welcomes **Ms Diana Mugadza**, Messers **McEpherson Gwindi** and **Enersty Gotosa**, all Geologists, who joined the service and assumed duty in September 2021.

CURRENT STATUS OF THE DEPARTMENT

Staff movements in the Ministry and resignations have left the Department almost incapacitated. Due to the shortage of experienced staff, not much technical work has progressed. Current work is centered on compilation of a Mineral Resource Series report on Lithium occurrences in Zimbabwe, which awaits field confirmation. The Department has continued to work with JOGMEC (Japan Oil Gas and Metals National Corporation) on a skills transfer programme on "Remote Sensing and image analysis" following the signing of a Memorandum of Understanding on 9th March 2020. **Mr Ndoro M**. and **Ms V. Gengezha** are now certified Remote Sensing Instructors. JOGMEC has continued to proffer technical support to the Department and is currently holding online workshops, seminars and regional remote sensing competitions in an effort to foster skills transfer.

MINING CADASTRE

In an effort to optimize mining title management, the Ministry of Mines and Mining Development has continued working on the Mining Cadastre Information Management System (MCICS) project. Implementation of the MCICS has gathered full momentum within the Mutare Provincial Mining Office, which has been used as on a pilot phase. The contractor has already delivered technical equipment for the project and begun training users. At the current pace, it is expected that the system will go live before the end of the year.

NATIONAL EXPLORATION MATTERS

- After just over a decade with no meaningful minerals exploration in the country, 28 Exclusive Prospecting Orders (EPOs) have been issued this year to date.
- A number of current EPO and Special Grant holders have approached the Department for recommendations as to the way forward in carrying out airborne surveys that include high resolution aeromagnetics and drone aerial surveys.
- The Mining Affairs Board is working hard to try and clear its backlog of work. They have, however, encountered challenges as some applicants have failed to submit all relevant documentation, whilst others give apologies and request deferment. Such deficiencies have as a result prolonged the process.

Submitted by: *Lloyd SHAWARIRA (Acting Director)*
lshawaz2@yahoo.co.uk

MINING INDUSTRY NEWS

gleaned from https://www.mining.com/

by Kennedy Mtetwa

Zimbabwe threatens to seize platinum concession from Eurasian Resource affiliate

Bloomberg News | May 31, 2021 | 3:02 am News Africa Platinum

Zimbabwe's mines minister has informed Todal Mining Ltd, a venture controlled by Eurasian Resources Group, that its platinum mining concessions could be seized because no progress has been made in developing them. The Bokai and Kinonde concessions may be taken over under the "use-it/lose-it principle", which allows the state to repossess idle mining claims, Minister Winston Chitando said in a letter to Todal dated May 28 and seen by Bloomberg. The mines ministry confirmed the veracity of the document.

"I note with concern that over the last few years there have been several changes to the work program to make this project progress to production stage," Chitando said in the letter.

Zimbabwe, which has the world's third-biggest platinum group metal reserves, has struggled to develop its mining potential with investors from Russia, Cyprus, Nigeria and Kazakhstan yet to bring projects into production. The Todal assets were taken from Anglo American Platinum Ltd, which does operate a mine in Zimbabwe, more than a decade ago and handed to Central African Mining & Exploration Co. That company was bought by Eurasian Natural Resources Co., which later became Eurasian Resources Group. Central African Mining lent the Zimbabwean government $100 million at the time.

"This is due process in the spirit of administrative justice," Polite Kambamura, Zimbabwe's deputy mines minister, said by phone. "We will give the asset holder a chance to respond through the mining affairs board. If there are any developments that they have made on it which we are not aware of they will make those submissions and a final decision will be made after all due process has been done."

ERG didn't immediately respond to questions sent by email and text message.
In 2013, the government said production on the mine was due to start that year. In 2008, Camec said a mine producing 150,000 ounces of platinum annually could be built for $200 million.
(By Ray Ndlovu and Godfrey Marawanyika)

State diamond miner in Zimbabwe sees output rising 30% this year

Bloomberg News | June 2, 2021 | 8:00 am News Africa Diamond

The biggest diamond miner in Zimbabwe said it will be able to increase production of rough gems by about 30% to 3 million carats this year thanks to improved mining methods.

> Zimbabwe Consolidated Diamond Co.'s mines in the east of the country have so far met monthly targets of 200,000 carats, Chief Executive Officer Mark Mabhudhu said in an interview in Harare, the capital. The company produced 2.3 million carats worth of diamonds in 2020 and mostly sold them to India and the Middle East. Its higher production comes as the global diamond industry recovers from the onset of the coronavirus pandemic. Cutting and polishing

> centres in India and Antwerp are replenishing supplies as sales pick up. ZCDC is finalizing a joint venture agreement with Russian diamond miner Alrosa PJSC, Mabhudhu said. The two sides could reach a deal by the end of the year.

"It's progressing very well," he said.
(By Godfrey Marawanyika)

Zimbabwe mining CEO to quit, putting economy reboot in doubt
Bloomberg News | June 25, 2021 | 6:32 am Careers Africa

David Brown, CEO of Zimbabwe's Kuvimba Mining House, intends to step down, jeopardising the future of the company the government hopes will spur an economic revival. The 58-year-old South African mining veteran has told Kuvimba stakeholders he aims to step away from executive positions, two people familiar with the situation said. Brown wouldn't comment on talks regarding his post at Kuvimba when called by Bloomberg.

> "It has always been my intention to transition from executive roles to non-executive roles," Brown said in a separate emailed response to queries. "When I joined it was always understood that this was the process I wanted to follow."

Kuvimba says it aims to build one of the world's biggest platinum mines and revive a number of neglected gold and [nickel]operations, projects that are key to boosting the nation's export earnings. Zimbabwe's finance minister, Mthuli Ncube, in January said Brown was appointed to head the company because of his international experience and track record. Appointing his replacement will highlight questions of control and ownership. The government says that together with state-controlled entities it holds 65% of Kuvimba, which also has nickel and chrome operations. But documents, emails and WhatsApp messages seen and reported on by Bloomberg on May 11 show how, through a complex series of transactions, the assets that form the core of its holdings were until recently owned by or tied to Kudakwashe Tagwirei, a politically connected businessman and presidential adviser who was sanctioned for corruption by the US last year. Almas Global Opportunity Fund SPC, an investment firm registered in the Cayman Islands, said it still owned the mining assets months after Ncube said they formed part of Kuvimba. It didn't immediately reply to a query made by Bloomberg on Wednesday.
(By Felix Njini and Antony Sguazzin, with assistance from Godfrey Marawanyika)

Zimbabwe to allow miners to export portion of their gold
Reuters | June 28, 2021 | 5:05 am Africa Gold

Zimbabwe's central bank will allow large-scale gold mining companies to directly export a portion of their bullion, an official said, as the bank gradually eases its control of gold trading in the country. The central bank-owned Fidelity Printers and Refiners (FPR) is the sole buyer, refiner and exporter of gold in the southern African nation but has at times struggled to pay producers. Reserve Bank of Zimbabwe's director of exchange control Farai Masendu said in a circular that miners who increased gold production above their average monthly output would be allowed to directly export that portion.

> This would "enable them (gold miners) to secure funding in form of gold loans, to enhance their gold production," said Masendu.

The central bank plans to unbundle FPR into two separate companies and sell a majority stake in the new gold refinery business to miners. The government says gold worth $1.2 billion is illegally exported from Zimbabwe annually. Small-scale miners, which extract most of the precious metal in Zimbabwe, blame low prices and late payments by FPR for the leakages.
(By MacDonald Dzirutwe; Editing by David Evans)

Zimbabwe plans to register gold miners to curb smuggling
Bloomberg News | July 7, 2021 | 8:35 am Africa Gold

More than $1.5-billion of gold is illegally shipped out of Zimbabwe every year. Zimbabwe is drafting legislation that will compel small-scale gold miners to register their operations as the southern African nation seeks to curb gold smuggling according to John Mangudya, central bank governor.

> "Government is in the process of putting a statutory instrument for all the gold producers, just like what we do under tobacco where there is a grower's number," Mangudya told lawmakers in the capital, Harare at a virtual briefing on Monday. "We need to ensure that they do not take the gold out of the country."

Zimbabwe's gold deliveries for the five months through May plunged 24% to 7030 kilograms from a year earlier, according to Fidelity Printers and Refiners, the country's sole gold buyer. Authorities blame smuggling for the decrease in gold output. More than $1.5-billion of gold is illegally shipped out of Zimbabwe every year, depriving the cash-strapped economy of crucial foreign exchange revenues, according to research organization International Crisis Group. The country seeks to produce 30 tonnes this year after extracting 19.1 tonnes in 2020.
(By Ray Ndlovu)

UAE, Zimbabwe sign pact that may see Victoria Falls gold market
Bloomberg News | **September 8, 2021 | 8:01 am** Markets Africa Gold

The Dubai Gold & Commodities Exchange and Zimbabwe's Victoria Falls Stock Exchange signed a memorandum of understanding that may lead to the establishment of a gold market in the African country. Zimbabwe wants to open the exchange in a bid to create a reference market that will see miners offered competitive prices, said Justin Bgoni, chief executive officer of the VFEX.

> "It is a holistic approach to the needs of gold miners," Bgoni said in response to queries from Bloomberg. "They raise capital and we make it easy for them to sell."

More than $1.5 billion of gold is smuggled out of Zimbabwe every year, much of it to Dubai, according to a report from research organization International Crisis Group last year. An exchange could make it easier to sell the metal legally and locally. Other commodities may also be traded on the exchange, should it be established. There is an "ultimate aim of establishing an international commodities exchange in Zimbabwe," the exchanges said in a statement. Zimbabwe is the second African country to seek an alliance with the DGCX. Earlier this year the Dubai-based exchange signed a memorandum of understanding with the Financial Markets Regulatory Authority in Sudan to boost gold trading between the two countries.
(By Ray Ndlovu)

Implats Zimbabwe unit plans 185 MW solar power plants
Reuters | July 26, 2021 | 7:38 am Africa Platinum

Impala Platinum Holdings Zimbabwe unit Zimplats plans to build two solar power plants with a generation capacity of 185 megawatts to power its operations, the country's energy regulator said on Monday. The Zimbabwe Energy Regulatory Authority said Zimplats, the biggest platinum group metals producer in Zimbabwe applied to build a 105 MW plant at Ngezi, southwest of Harare, where it has mines and two concentrators, and 85 MW at nearby Selous where there is a smelter and concentrator. Zimplats, which also jointly owns smaller platinum miner Mimosa Mining Company with Sibanye Stillwater, imports its power from Mozambique's Hydro Cahora Bassa.

Zimbabwe has experienced acute power cuts in the past, the latest in 2019 that lasted up to 18 hours a day, which affected the mining sector, the country's biggest earner of foreign currency. On Monday, the country was producing 1,227 MW, below its peak demand of 1,400 MW. The government expects 100MW of electricity to come from new renewable energy projects by the end of this year and other mining companies are also planning to produce power from solar energy.
(By MacDonald Dzirutwe; Editing by Barbara Lewis)

Mining industry news courtesy of AFRICAN BUSINESS
Can Zimbabwe fix its broken gold mining sector?
Jack Dutton July 7th 2021

Reforms needed [in the mining industry] *Extracted*
Although violence has fallen during the pandemic, Mukasiri Sibanda, industry analyst and co-ordinator of the Stop the Bleeding Consortium, a group of civil society organisations fighting to curb illicit financial flows from Africa, believes it could easily return if the root causes are not addressed.

> "Multi-claim ownership disputes must be curbed through greater transparency and accountability in the application, acquisition, maintenance, and forfeiture of a mining title. An online mining cadastre is required," he says.

A cadastre – an official record of the owners of land and of the amount and value of the land they own – would help make the sector more transparent, meaning that disputes would become less common.

> "ZANU-PF must take an active interest in controlling and disciplining its rogue members at all levels especially the top brass wreaking havoc in the sector," Sibanda adds.

Both Curtis of Caledonia and the other mining executive believe reforms are needed to make the sector more investment friendly, and there has been some progress. In February the government changed its policy to allow producers to get paid directly from the refinery, rather than the funds being processed by the Reserve Bank, meaning payments are made to the producers more quickly and efficiently. In May, the government said that under a new incremental export incentive scheme, all exporters currently retaining 60% of their foreign currency receipts will have their retention threshold increased to 80%. Gold producers who deliver gold quantities above their average monthly deliveries will benefit from the higher threshold.

> But the government's statement on incentives is "incredibly ambiguous", says the anonymous mining executive. "If they're saying they want to pay better attention on

> incremental gold that's great – if incremental means anything more than last year. But what if incremental means anything more than the month before? No one understands it so how do we act?"

Curtis is among the many gold producers in Zimbabwe that wants the government to let them export 100% of their own bullion.

> "Given the mere fact that we are going to be allowed to export our incremental gold, it's obvious that we should then argue, if our incremental gold is good enough to export and control, why is the base load not good enough to export and control? If you trust us to export the incremental, why not do the whole lot and just simplify the process?"

On-Line Talks and Upcoming Events

As reported by *Nevison Chikandiwa*

The Society continues with our online talks programme, with other presentations lined up for the remainder of the year.

Godfrey Chagonda presented *"On the spatial association of granite intrusions and gold mineralization in the Mberengwa Greenstone Belt"*on 15th July 2021.

On 5th August 2021, Tatenda Mafara presented a talk titled *"Drones in Mining"*.

The 9th September 2021 saw Tariro Ndhlovu present his talk entitled *"redictive modelling of orogenic gold deposits within the Harare-Shamva Greenstone Belt"*.

Ngonidzaishe Tobani discussed *"Institutionalising Geological Considerations for Development Planning -–need for a National Geohazard Disaster Management Plan"* on 23rd September 2021.

Tenyears Gumede presented *"The post-Karoo Mutandahwe Igneous Complex of southeasten Zimbabwe -–A host to a potential 'CLIMAX-Type' Porphyry Molybdenum Deposit with distal Tungsten/Copper?"* on 7th October 2021.

The Society will continue to host these zoom based online talks and we would like to thank the membership for participating

Do diarise these Zoom events, although reminders will be circulated closer to the date.

And we continue with our collaborative link with the Geological Society of South Africa to participate in their series of online talks and other events, notification for which is circulated through our Secretariat. A link has now been established with the Geological Society of Namibia in order to share online events.

Relevant to us was a presentation by Dr Lara Sciscio, now at the Jurassica Museum in Switzerland, which was hosted by the Overberg Branch of the Geological Society of South Africa on 16th September. She reviewed *"120 years of palaeontological discovery in Zimbabwe's Karoo-aged basins, 1901-2021"*. This talk can be viewed on-line if you 'Google' *'Lara Sciscio You Tube'*.

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GSZ Research and Development Fund

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

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SEG Timothy Nutt Memorial Fund

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

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Conferences

GSSA Geocongress 2020

Stellenbosch, Western Cape
The next 125 years of Earth Sciences
Postponed to 2022

For further details see the Geological Society of South Africa Newsletter, October 2021.
Nevison Chikandiwa should be representing us.

12th International Kimberlite Conference

30 years of diamonds in Canada
Postponed - 15 to 19 August 2022
Yellowknife, Canada
secretariat@12ikc.ca

Geological Society of Zimbabwe

Summer Symposium 2021

Friday 26th November 2021

Department of Chemistry and Earth Sciences, UZ
Diamond Lecture Theatre opposite Department of Geology

We are planning an in-person summer symposium this year and the below is a selection of the talks that we have lined up.

Topic	**Speaker**
Official Opening	Prof P. Mapfumo, Vice Chancellor, University of Zimbabwe
GSZ Mentorship Programme	Steve Duma
GSZ Professional Registration	Kennedy Mtetwa
Detrital zircon geochronological data bearing on the reconstruction of the late Mesoproterozoic Umkondo-Ritscherflya foreland basin (Zimbabwe/Antarctica)	Sharad Master
Summary Of The Petroleum Exploration Completed In The Mzarabani Project By Invictus Energy	Brent Barber
CSAMT Survey - Water in Tsholotsho Area	Hilary Gumbo
Geophysical Modelling of the Ni-Cu Mineralised Jacomynspan Ultramafic sill, Northern Cape, South Africa.	Mhaka Ushendibaba
Petrological composition and depositional environment of Hwange Main Coal Seam	Oliver Maponga
Structural constraints on the evolution of the south-eastern Mwanesi Greenstone Belt and adjacent granitoids, central Zimbabwe Craton: implications for gold mineralisation	Brian Mapingere
Data Integration & Automation	Eugene Snyman
Which assay method to choose for your geological samples?	Spicer Munjeri
The complex tectonic setting of the Umkondo Chimanimani Diamondiferous Grits- preliminary results discussed.	Bornwell Mupaya
The use of mobile laser scanning to 2D & 3D map old underground workings	Matthew du Toit

Umkondo Field Trip

From Saturday 27th November to Monday 29th November we are planning a field trip to the Umkondo in the Gairezi Area. Accommodation will be camping plus limited cottage space. 20km from Troutbeck where there is a wide range of accommodation. Further details to follow.

We look forward to seeing you in person!

A GREAT OPPORTUNITY EXISTS TO CREATE ADDITIONAL AWARENESS

Advertising on the GSZ website is only $50 per display for a 6-month period.

Visit http://www.geologicalsociety.org.zw/ to see where the adverts can be placed, and choose your spot.

Please contact Andrew du Toit at andrewdutoitzim@gmail.com, or the Administrator at geol.soc.zimbabwe@gmail.com, for more information.

Don't forget - you can also advertise in this Newsletter through these contacts.

GEOLOGICAL SOCIETY OF ZIMBABWE:
CONTACT DETAILS OF MEMBERS OF THE EXECUTIVE COMMITTEE FOR 2021

NAME	PORTFOLIO	EMAIL
Tirivabaya, Renias	Chairperson	rennyt80@gmail.com
Mtetwa, Kennedy	Vice Chairman	kcmtetwa@yahoo.co.uk
Musiwa, Kudzai	Hon. Secretary	kudzimusi@gmail.com
Mwatahwa, Collins	Hon. Treasurer	collinsm885@gmail.com
Mabhanga, Shephard	Newsletter	smabhanga@gmail.com
Chikandiwa, Nevison	Talks & Field Events.	wchikandiwa@yahoo.co.uk
du Toit, Andrew	Summer Symposium. Phaup Award	andrewdutoitzim@gmail.com
Mugumbate, Forbes	ZGS Representative. Phaup Award	fmugumbate@gmail.com
Duma, Steve	Student mentorship	duma.steven@gmail.com
Mamuse, Antony	Co-ordinator–Regional Representatives	antony.mamuse@graduate.curtin.edu.au
Matsanga, Miriam	Without Portfolio	mmatsanga22@gmail.com

Institutional Membership, 2021

Bruker RSA

Chamber of Mines of Zimbabwe

Freda Rebecca Mine

Invictus Energy

MaxGeo

Metallon Gold

Mimosa Mining Company (Pvt) Ltd

New Dawn Mining

Optimum Drilling

Prospect Resources

RioZim Limited

RZM Murowa (Pvt) 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 Platinum Mines Limited