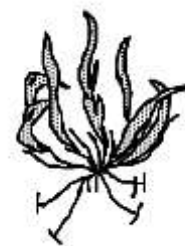


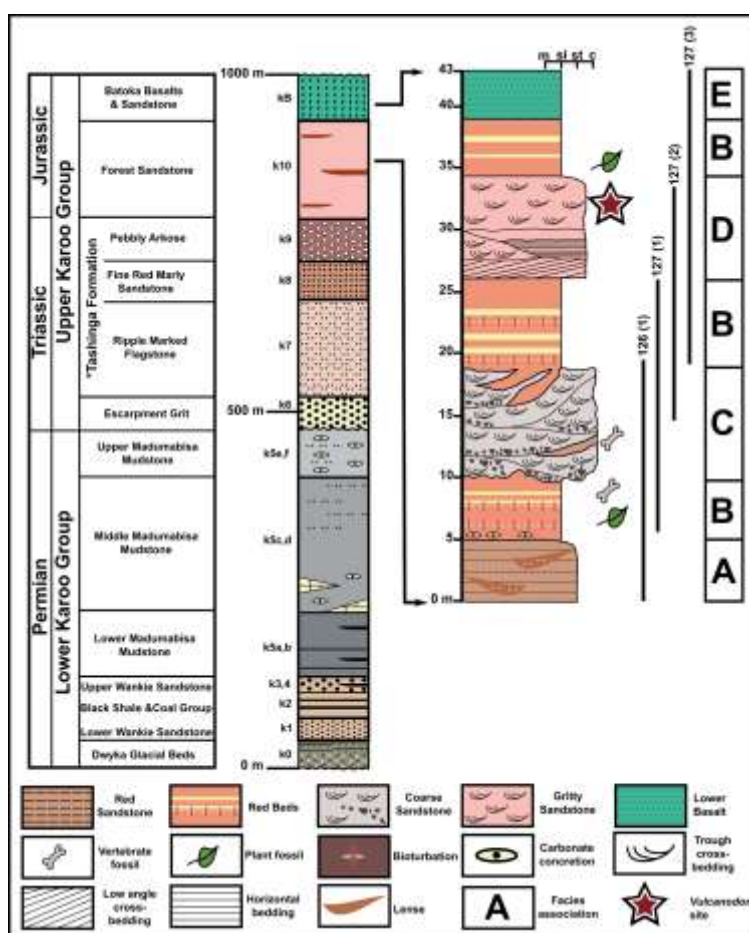
# Geological Society of Zimbabwe



## Newsletter

October 2017

No. 3 of 3 of 2017



A composite section adapted from [Johnson et al. \(1996\)](#) showing the stratigraphy of the Mid-Zambezi Basin in Zimbabwe. The position of the *Vulcanodon karibaensis* type locality in the stratigraphic column is shown. In addition, a detailed stratigraphic column of the site shows the position of *Vulcanodon*, new fossil material, and facies associations (A-E) encountered in the Forest Sandstone and Batoka Basalt formations. Note that all facies, except for Facies FE, which is igneous, are sandstones. The “k” symbols to the left of the composite section are the original names for lithological units given by Geoffrey Bond. From [Viglietti, P.A. et al. \(2017\)](#).

[www.geologicalsociety.org.zw](http://www.geologicalsociety.org.zw)

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

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## Editorial

As the year-end with our annual Summer Symposium is fast approaching, Members are encouraged to come together on 1<sup>st</sup> December at UZ. The line-up of talks promises to be varied, topical and stimulating, and it's our prime chance to interact with each other. Check out the programme elsewhere in this Newsletter, and make a plan to be there.

Tony Martin comes back with his pictorial progress through the Reliance Formation Type Section south of Zvishavane. The Mennell Society reports on student activities and the editor unearthed some interesting facts about F.P. Mennell as recorded in his widow's memoirs. This summary might be of interest to Mennell Society Members, both past and present. The frontispiece illustrates the stratigraphic association of *Vulcanodon karibaensis* at its Type Locality on Island 126/127 in the Sibilobilo island chain, Lake Kariba. This is part of the fruit from the January fossil expedition to the Lake shoreline, which has been reported upon by Dr Pia Viglietti and others from the Evolutionary Studies Institute at Wits, the Natural History Museum in London and our own National Museums and Monuments. The abstract outlines the task and its implications whilst the broader aspects of palaeontological achievements in Zimbabwe during 2017 will be featured at the Symposium.

Whilst we thank our regular contributors for gathering news about the Geology Department at UZ, and the Geological Survey, whilst gathering snippets from the Mining Industry, it is refreshing to have initiated updates from Midlands State University and the School of Mines.

*Tim Broderick*



## Chairperson's Chat

*Maideyi Meck*

Your Society continues to breathe and the Committee is working hard to bring in value, having already made good progress on several initiatives. A good number of talks have been presented. The Committee agreed that Members will be individually responsible for applying for their CPD points from the organisations to which they belong that may relate to any talks presented through the society activities, but we will assist participants by maintaining registers of attendance. The Society Website is up and running but requires your member's input in form of placing logs of interesting exposures, the addition of photographs, and by participating in discussion.

The Committee has nominated Mr Collins Mwatahwa and Mr Forbes Mugumbate to be regional co-ordinators for the Midlands and Northern mining regions in an effort to bring our activities closer to far-flung geologists. They will create channels of information regarding the dissemination of information and by mobilizing activities such as talks and field trips within the different regions. We hope that they will be able to organise social

functions locally that will give members a chance to interact, socialise and allow for them to updates each other on new developments.

The Administrator, Julie Kuhn, is actively following up on membership subs and you can help her by communicating with her directly with respect to any subscription outstanding. The list of paid-up members is on our website so anyone can check who the genuine members of the society are.

New Members who have been approved and are welcomed are:

Noah Chisale  
Tapiwa Nyamutukwa

This year, the Summer Symposium will be held at the Department of Geology, University of Zimbabwe on 1<sup>st</sup> December 2017 followed by a field trip on Saturday 2<sup>nd</sup> December to the Cam and Motor Mine, Kadoma. We invite all of you to participate. The Society is pleased to announce that the proposed programme of speakers is now full, the list of talks being advertised elsewhere in this Newsletter. The cost of attendance will be \$20.

Thank you!

## Articles and Reports

### **Some aspects of the Reliance Type Section**

*Tony Martin*

The Reliance Formation consists of three main lithologies: a thin basal unit of tholeiitic basalt succeeded by massive spinifex-textured and pillowed komatiitic basalt with the upper half of the 1 km-thick succession being dominated by komatiite.

There are three significant exposures of parts of the succession, the Type Section, the Ngezi River outcrops and Hall's Flow. The two last exposures have yet to be photographed and this article covers some of the aspects of the lower part of the komatiitic basalt succession.

The Manjeri Formation is poorly exposed with less than a metre of sheared gossanous iron-formation but its presence is nevertheless significant. It unconformably overlies the Brooklands Formation.



Manjeri Formation outcrop at the base of the Reliance Type Section

Above the basal tholeiite is a 100 m-thick differentiated flow or sill, the lower 80m of which consists of serpentinite with thinner overlying layers of pyroxenite and gabbro. These units are common just above the Manjeri throughout the greenstone belts.



Basal serpentinite - a thick flow or sill

A layer of sheared tuff breaks the monotony of poorly exposed massive komatiitic basalt flows with the next good exposure being a pillowed unit, followed by a spinifex-textured flow that displays all of the internal zones.

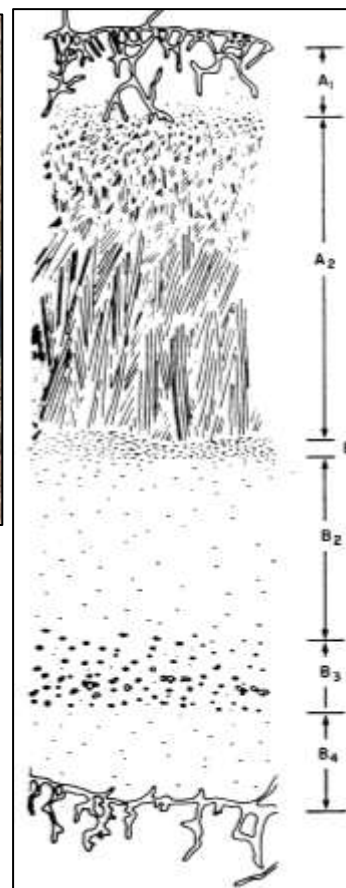




Komatiitic basalt pillow structures



Aligned pyroxene spinifex A<sub>2</sub> Zone



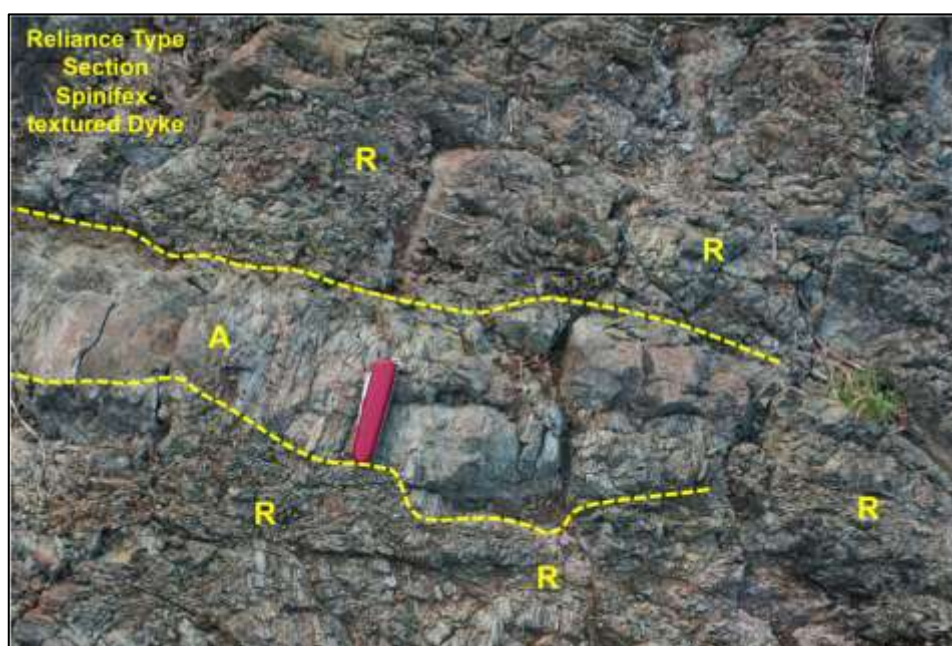
The pyroxene spinifex displays unusual folding interpreted to be the result of compression by the overlying flows that were in a semi-consolidated state.





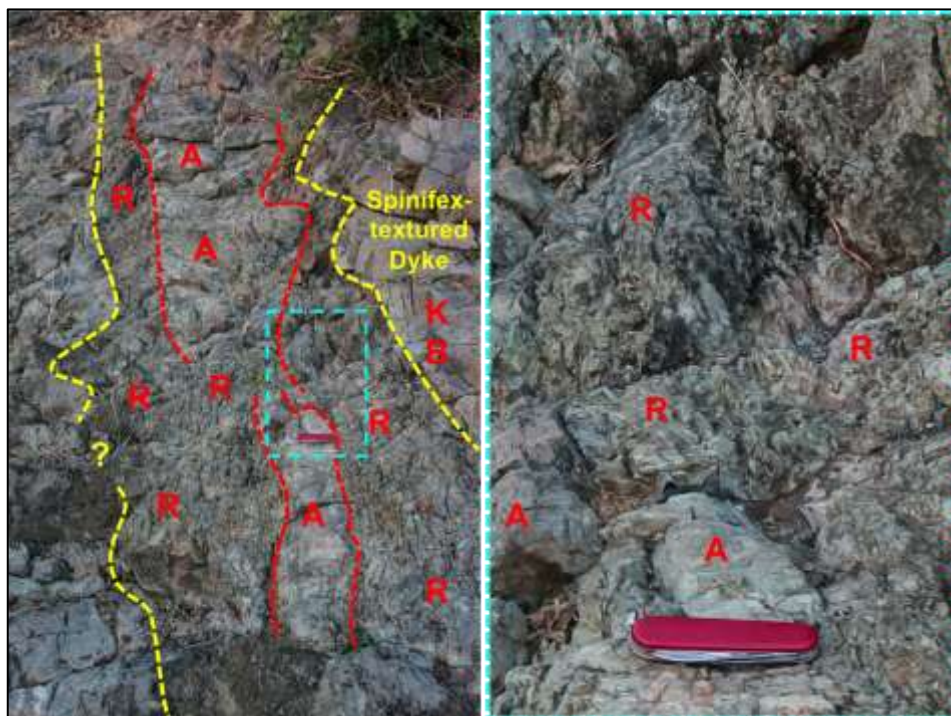
The basal parts of all of these flows are enriched in olivine (usually serpentinized) and these typically are bluish in colour, unlike the green serpentinite of the very thick flows or sills.

About 100m upstream from the access road is an exposure that shows a succession of thin, massive and spinifex-textured units. These do not display the normal style of zoning and have been interpreted as the injection of komatiitic basalt liquids into semi-consolidated flow units.



Injections of komatiitic liquids into other spinifex-textured units

This interpretation is based on the patches of aligned and random spinifex textures that have uneven contacts and do not persist along strike. It seems that multiple injections into semi-consolidated komatiitic basalt have chilled to produce spinifex textures, which have then been disrupted by subsequent magma injections.



Left: Yellow lines enclose a spinifex-textured zone; R denotes random spinifex; A aligned spinifex; and KB massive komatiitic basalt. The blue rectangle shows the area enlarged in the photograph at right.

The next episode of the newsletter may contain some photographs of the Zeederbergs Formation.

**ABSTRACT: Stratigraphy of the *Vulcanodon* type locality and its implications for regional correlations within the Karoo Supergroup.** Viglietti, P.A. *et al.* 2017. *J. Afr Earth Scis*, **137**, pp. 149-156.

*Vulcanodon karibaensis* is one of the earliest-branching members of Sauropoda and a forerunner of the largest terrestrial animals ever to have lived. Its stratigraphic position has most recently been given as Toarcian (latest Early Jurassic), making it a contemporary of the northern African taxon *Tazoudasaurus*, but some literature suggests that it may be considerably older. This uncertainty obscures our understanding of the timing of major sauropod evolutionary events, such as the onset of the major body size increases that characterize the clade. To improve constraints on the geological age of *Vulcanodon*, we revisited the type locality and collected new, higher precision stratigraphic and sedimentological data. Our results show that *Vulcanodon* is from lower in the stratigraphy than previously documented, lying within the uppermost Forest Sandstone rather than the interbedded sandstones of the Batoka Basalt Formation. Sedimentological data suggest that the upper part of the Forest Sandstone correlates with the Clarens Formation of the main Karoo Basin, implying that *Vulcanodon* is likely Sinemuriane-Pliensbachian in age, and potentially ~10-15 million years (Ma) older than previously thought.



## **Extracts from the Memoirs of Mrs Elizabeth Aletta Malvina (Ina) Mennell, widow of the late F.P. Mennell**

Ina Mennell was born in Cape Town on 11<sup>th</sup> August 1885 as the only daughter of Mr and Mrs E.C. Baxter. Her father was Collector of Customs at Mafeking but the family moved to Bulawayo in June 1897, travelling by train to Gaborone then onwards with a cargo of rails to Palapye beyond which they travelled by Zeederberg's Coach through Mangwe Pass to the City of King's. After schooling in Cape Town and a sojourn in England Ina returned to Bulawayo to their family home in Hillside. Water was a problem and had to be carted by bucket from a well in the Commonage. A well dug on their property was dry. Mr Baxter made acquaintance with a young geologist, Fred Mennell, who had become the first Curator of the new Museum in Bulawayo in 1901. Mennell descended the well in a bucket suspended from a windlass. Examining the well sides he said that there was a dyke of 'blue stone' on the east side and that we should drive into it. When this was done the water gushed out and up until 1978 at least, there was a plentiful supply of water in the well.

Seven years later, on 7<sup>th</sup> September 1911, Fred Mennell and Ina Baxter were married by Bishop Bevan in the old St John's Church, Bulawayo. My husband had left the Museum and was then Sir Abe Bailey's representative for the Rhodesian Exploration and Development Company. When this company amalgamated with Goldfields Frederick resigned and we returned to England in 1912, remaining until 1917. We lived in Devonshire where my three eldest sons were born. When the famous Globe & Phoenix court case was held in London, Frederick was asked to give evidence on behalf of the Amalgamated Properties who owned the John Bull Mine. (Remember, this was an extra lateral rights issue).

We returned to Bulawayo where Frederick had acquired a 70-acre plot, which we called 'Whiteson' after our parish in Devonshire. (This is probably now the grounds of Whitestone School in Bulawayo). Mennell then bought a 1300-acre plot along the Queen's Road to the north of Bulawayo along the Umguza valley, as there was a demand for food produce during WWI. However, when Fred was away in Broken Hill (Zambia) on business, I had to run 'Whiteson' and manage the farm. The upshot was that 'Whiteson' was sold and Ina went on holiday to Mossel Bay in the Cape with her then five children, the sixth being born there in 1921 before the family returned to the Bulawayo farm by train.

In the 1924 Southern Rhodesian general election my husband was elected a member of the two-seated Wankie Constituency. Unfortunately, on the day of the election he was knocked down by a car and sustained a broken leg. His leg remained very stiff, and for years he was unable to drive a car, so I had to drive him all over the country to attend his parliamentary duties and his mining interests.

He was often asked by Johannesburg mining companies to report on mining claims, and company officials would come to inspect his work. On one of these trips to Lower Gwelo we had to use wagon roads, which were deeply rutted and often the central ridge had to be leveled. When we came to a dry river bed with very steep banks at dusk I refused to continue, so we slept there in the open. Next day the car hit a sharp rock along the road, which damaged the sump thus losing much of its oil. However, we had to

continue. The next river crossing was very sandy, so we had to cut branches as a corduroy to allow our passage. Then, hearing the distinctive sound of a stamp mill, we reached the mine where Mr Shepherd, the miner, provided us with hutted accommodation and supper. In the morning two copper plates were bolted over the hole in the car's sump, which was filled with oil from the mill. The group managed to start the car and they continued on their journey, and the copper plates remained in place for the duration of the car's life.

The Mennell's two eldest sons, Philip and Darcey went to school at St George's, then in Bulawayo. Later Christopher joined them and Marjorie attended the Bulawayo Convent. On the farm they grew tobacco, cotton and maize, but then a four-year drought along with the advent of foot-and-mouth disease in the neighbourhood forced the family back into town where they lived in the Hillside house inherited from Ina's parents.

All my family eventually married. However, Charles died in a mining accident and Philip died from a heart attack whilst working for a Johannesburg mining company as a consultant metallurgist. Marjorie married Lock and their son, Peter, became Keeper of Geology at the Natural History Museum in 1973 and later Regional Director at the Mutare Museum.

Ina Mennell turned 90 in 1975. Frederick Philip Mennell had died in Bulawayo on 18<sup>th</sup> April 1966 aged 86.

*Compiled by Tim Broderick for the background interest of Mennell Society Members, past and present.*

See also: Bond, G. 1966. Obituary – Frederick Philip Mennell, FGS, MIMM. *Proc. Trans. Rhod. Scient. Assoc.*, Vol. 51, pp. 14-16.

## News



### Geology Department, University of Zimbabwe

*Maideyi Meck*

The department has now stabilized and has a new addition to the lecturing staff by the name of **Prince Mandingaisa**, a MSc holder. The semester commenced on 21<sup>st</sup> August and ends on 2<sup>nd</sup> December. Teaching has progressed well and the examinations will begin in mid-November. The department sincerely thanks the mining industry for accommodating our students for their crucial industrial attachment experience. We have managed to attach 21 out of 27 students. It is the department's hope that the remaining six will find placements before year end. With the help of the funding from Dr Martin, we continue to refurbish our teaching venues.

A student within the Geology Department is seeking assistance from members of the geological community to allow him to receive a bone marrow transplant in India. He needs the operation **urgently** but does not have funds. The transplant will cost between US\$25 000 and US\$30 000. For anyone interested in helping please could you contact either the Chairperson of the Geology Department or the Dean of Science on 024 303211 for details concerning this student.

Contact details as of February 2017:

Name	Position	Email	Cell	Office Number	Office Phone 04-303211 (Extension)
Prof M Ityokumbul	Professorial Chairman				15032 Secretary
Dr. M.L. Meck	Dept. Chairperson	<a href="mailto:mabvira@science.uz.ac.zw">mabvira@science.uz.ac.zw</a>	0772906612	25	15027
Dr. T. Njila	Senior Lecturer	<a href="mailto:drtnjila@gmail.com">drtnjila@gmail.com</a>	0783696888	21A/5A	15029
Dr. M. Tewelde	Senior Lecturer	<a href="mailto:mulugheta1@yahoo.com">mulugheta1@yahoo.com</a>	0775471789	6A	15030
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Mr. D. Maguze	Chief Technician	<a href="mailto:dmaguze@science.uz.ac.zw">dmaguze@science.uz.ac.zw</a>	0712639792	24	15033
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Mr. D. Mupambo	Technician	<a href="mailto:DIDYMUS@science.uz.ac.zw">DIDYMUS@science.uz.ac.zw</a>	0772916652	16	15024
Mr. P. Sena	Technical Assistant	<a href="mailto:psena@science.uz.ac.zw">psena@science.uz.ac.zw</a>	0772390026		15193
Ms. S. Gorogodo	Messenger/Cleaner		0772390026		15029





## The Mennell Geological Society Report Back on Student Activities

Audious Kashesha (Chairperson)    Bernatrix Makenah (Secretary)  
[audieekm@gmail.com](mailto:audieekm@gmail.com)    [panashebp@gmail.com](mailto:panashebp@gmail.com)

Dr T. Njila (Patron)

The report begins with picture collages illustrating Mennell Society activities in support of and supported by the Geological Society of Zimbabwe. These include a joint visit to the Ripple Creek limonite deposit near Redcliff in 2014 and fund raising activities at the GSZ Summer Symposium in November 2015. Following is a report on observations made during the student's field trip to the Belingwe Greenstone Belt led by Dr A. Martin in 2016. This concentrates on lithological and structural variations across the Manjeri Formation at the unconformity type-locality leading upwards to pillowed and spinifex-textured ultramafic lavas of the Reliance Formation and discussion on aspects of the palaeoenvironment.



*Piggy-back thrust planes exposed near Lomagundi College, Magondi Mobile Belt*

More detailed observations were made of the UZ Geology Field School run in 2017. This included a visit to the Chinamora Batholith and observations on the adjacent Umwindsi Shear Zone, on Tafuna Hill and along the road to Trojan Nickel Mine. Continuing to the Great Dyke the School visited the Royal West Mine then passed through the Mutorashanga chrome mining district to the old Ethel Mine asbestos quarry. Progress was then made for a study of rocks associated with the Magondi Mobile Belt around Chinhoyi where the King's Peak type locality for the Lomagundi Group was visited. This allowed for a study of various dolomite, pock-marked quartzite and striped slate exposures and their structural settings. In all localities aspects of the economic geology were emphasized. Finally the implication of gold mineralization associated with the Eldorado Shear Zone was focused upon.

## The Professor Tom Blenkinsop UZ Geology Field Trip Fund

Following the successful presentation of the 2013 A.M. Macregor Memorial Lecture in Harare and Bulawayo, and his lead of the field trip in the Renco Mine area, Professor Tom Blenkinsop made a generous donation of \$200 to the Geological Society of Zimbabwe (GSZ). This was in support of University of Zimbabwe (UZ) geology student field trips. Over the years the UZ Geology Department has been under funded, resulting in their failure to raise sufficient money to conduct the mandatory field trips for its students. The GSZ responded by donating funds and materials from its own resources as well as from members. This assistance went towards the welfare of the geology students, especially in meeting costs for field trips.

Using the donation from Prof. Blenkinsop as seed money, the GSZ has now established the "*Professor Tom Blenkinsop UZ Geology Field Trip Fund*" to be administered by its Executive Committee. Tom has indicated an interest in supporting the Geology Department on a long term basis, not only to help in mobilizing funds for various activities, but by also providing moral and material support. Annually the students go on their main field trip, which lasts around 2 weeks with direct costs being in the range of \$6000 per class. Therefore we are appealing to all our members to donate generously to this worthy cause both in cash or in kind. Materials such as fuel and food are most welcome.

The direct benefits that accrue to the geological profession are that it ensures a properly trained graduate. Referring to the adage that the best geologist is the one who has seen the most rocks, our students need quality field trips. From these field excursions we also want to develop the Zimbabwe Geology Atlas.

Your donations, either in cash or in kind, should be forwarded to our Treasurer, Collins Mwatahwa – E-mail: [cmwatahwa@Angloplat.com](mailto:cmwatahwa@Angloplat.com) or to our Administrator, Julie Kuhn - E-mail: [geol.soc.zimbabwe@gmail.com](mailto:geol.soc.zimbabwe@gmail.com)

THANK YOU FOR YOUR GENEROSITY

H. N. Gumbo



**MIDLANDS STATE UNIVERSITY**  
**FACULTY OF MINING AND MINERAL PROCESSING ENGINEERING**  
**ZVISHAVANE CAMPUS**

**1. Introduction**

Preparations for the launch of undergraduate Geology and Geophysics degree programmes under the new Geosciences Department of the Midlands State University's (MSU's) Faculty of Mining and Mineral Processing Engineering is progressing well. As the Faculty continues to engage the Mining Industry in its programmes, two short courses were recently offered to industry participants: Geostatistics (2-6 October 2017) and Mining Law (9-13 October 2017). The Faculty thanks industry and individual participants for contributing to the success of the Faculty's inaugural short courses.

**2. New programmes**

As part of the Faculty's growth strategy, the new Department of Geosciences is expected to commence operations in 2018, initially offering three undergraduate programmes in geology and geophysics. The Faculty is also reviewing the mode and timing of its proposed postgraduate Geoscience mapping programme.

**3. Short courses**

As indicated above the Faculty, through its Mining Engineering Department, offered the Geostatistics and Mining Law short courses to industry participants in October 2017. The short courses are part of the core curriculum of the Faculty's mainstream students but were extended to industry participants. The Geostatistics short course was facilitated by a South African-based resource estimation corporate consultant and was attended by 20 participants including 11 industry participants. The Mining Law short course which attracted 18 participants including 9 from the mining industry and legal fraternity was facilitated by two Mining Law experts from the MSU Department of Private Law, Chairperson of the MSU Mining Engineering Department, and a former Mining Commissioner who is now the Faculty's Administrator. All participants successfully completed the short courses and were awarded certificates of completion. The Faculty is in the process of establishing the certification process to ensure that participants earn continuous professional development points (CDP) through its short courses in future.

Whereas the Faculty plans to offer Geostatistics and Mining Law short courses once or twice per year to industry participants, the Faculty can also organise any other relevant short courses for industry participants if there is sufficient demand.

**4. Other Faculty activities**

A second meeting of the Faculty's Mining Industry Advisory Committee will be held before the end of 2017 to review progress since the inaugural meeting in May 2017, and to table and discuss 2018 activities. Students' Mining & Metallurgy Association, meant to keep students abreast with developments in the mining industry, organised several activities involving the mining industry, including a lecture and mine visits. Staff and



student research and development activities will be covered in future issues of the Newsletter.

#### 5. Conclusions

MSU's Faculty of Mining and Mineral Processing Engineering endeavours to continue complementing efforts of sister training institutions, the mining industry and government in advancing the cause of value addition and beneficiation of Zimbabwe's mineral resources through excellence in research, training and community engagement. To this end, the Faculty values partnerships with these local players, as well as with relevant regional and international institutions.

*Submitted by Dr Antony Mamuse, Acting Dean*

[antony.mamuse@graduate.curtin.edu.au](mailto:antony.mamuse@graduate.curtin.edu.au)

## NEWS FROM THE ZIMBABWE SCHOOL OF MINES

The school's second semester commenced on 24<sup>th</sup> July 2017 and will end on 8<sup>th</sup> December. The school held a second stakeholder consultative meeting on the ZSM being an Independent Examination Authority on 21<sup>st</sup> July 2017 in Bulawayo. All departments have carried out all of their planned educational trips and camps for 2017. The Graduation and Prize Awards ceremony was held on 6<sup>th</sup> October 2017 when a total of 185 students graduated. The Guest of Honour was the Minister of Mines and Mining Development, Hon. W. Chidakwa.

Mimosa Mining Company has taken on the construction and equipping of the Artisanal Small-scale Miners Laboratory at the school. The ZSM is currently fundraising for the construction of a clinic. An annual Golf Tournament & Cocktail Party has been set for the last Saturday in October each year. This year's tournament is on 28<sup>th</sup> October. The tournament and cocktail are open to individuals, mining houses and corporate institutions.

The ZSM Has been offered additional land to accommodate some of the critically needed, but outstanding infrastructural requirements by Bulawayo City Council, Mutare City Council, and the Zvishavane Town Council. Among the most important needs is construction of Gemmology Centre and the Mine Rescue Centre.

*Maideyi Meck*

GSZ representative on the ZSM Board

**ZIMBABWE**

## *Geological Survey Department*

*Ernest T. Mugandani*  
[etmugandani@gmail.com](mailto:etmugandani@gmail.com)

### **Staffing**

The department ended the first half of the year on a sad note following the passing on of **Camel Mesa** on 17<sup>th</sup> July 2017. He was an Office Orderly. May his soul rest in eternal peace.

**Mabasa Temba Hawadi**, the writer and Mathias Ndoro participated in the 2017 MINENTRA exhibition held from 18<sup>th</sup> to 21<sup>st</sup> July in Bulawayo. The department also participated for the first time at the Harare Agricultural Show in August. **Tapiwa Magidi** and **Ms Vimbai Takawira** manned the exhibition at the show.

**Sokesimbone Lunga**, **Frank Muzanenhamo** and **Ms Sibongubuhle Mpindiwa**, all Principal Geologists, continue to act respectively as Provincial Mining Directors for Matabeleland South, Mashonaland West and Masvingo mining districts while the writer continues as Acting Deputy Director for the department. Frank Muzanenhamo will be in Tokyo and Kosaka, Japan during October 2017 on a Metal Mining Development Administration training course, courtesy of Japan International Cooperation Agency (JICA).

**Lameck Maninji** joined the department as a geologist on 5<sup>th</sup> July but resigned his contract on 21<sup>st</sup> August 2017 to pursue further studies. Prior to joining the department he was a lecturer at the University of Zimbabwe.

**Richard Mbofana**, Office Orderly, retired from service with effect from 12<sup>th</sup> September 2017, having served the department for 25 years.

### **Training**

The writer once again participated in a study tour to the Council for Geoscience (CGS) in Pretoria from 20<sup>th</sup> to 25<sup>th</sup> June 2017. He was accompanied by Messrs Robert Sithole, Mathias Ndoro, Charles Chavunduka, Thembelanenkosi Ncube and Fundai

Mandikutse. Nyasha Chimuka, Marita Matsatswa and Charlaine Chatambudza baanced the gender component of the team.

The objective of the study tour was to learn how other geological surveys are carrying out their activities and programmes with special emphasis on digital map production technology and geological data management. The training tour was made possible through African Development Bank (AfDB) funding under the Governance and Institutional Strengthening Project (GISP). Lessons gleaned from the interaction will without doubt help to shape our thinking as we seek to transform our own organisation into a more efficient and well-resourced Geological Survey.

The latest beneficiaries of the look-east policy are **Mathias Ngoro** and **Admire Charumbira**. Mathias attended a training course on Geological Survey Information Technology for developing countries in Beijing, China from 31<sup>st</sup> July to 29<sup>th</sup> August whilst Admire was also in Beijing attending a Seminar on Geological Survey and Mineral Resources Management for Administration Officials from African Countries from 7<sup>th</sup> to 27<sup>th</sup> September 2017. While in China, Admire also attended the China Mining Conference 2017 in Tianjin City.

### **Bulletin Editing**

The project period for African Development Bank (AfDB) funded programmes under GISP was extended from 30<sup>th</sup> June to now end on 31<sup>st</sup> December 2017.

Editing of the 12 geological bulletins and 7 maps is progressing well despite having missed the completion timeline due to a number of challenges. However, editing of 8 bulletins has now been completed and these are being reviewed for conformity to required standards. Digitizing of the 7 maps is an on-going exercise.

The four outstanding bulletins edited by foreign-based editors are likely to be delivered this month following approval by the Reserve Bank of Zimbabwe (RBZ) for payment to be made by Tailjet Consultancy Services through their bankers.

## *NEWS from the MINING INDUSTRY*

*Forbes Mugumbate*  
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### **The return of Greenfield Minerals Exploration in Zimbabwe - a pipe dream?**

As geologists, our wish has always been for government to enact policies that attract companies with risk capital to come and inject their monies into basic exploration through the EPO system. Currently the structure of the mining industry is symptomatic of a dying sector. A number of major gold-producing mines are aging, and yet there is no serious exploration taking place for new deposits. There are therefore benefits to be gained from policies that encourage the influx of junior mining organizations who wish to invest. However, recent assertions by some government officials are that Western companies have previously undertaken massive exploration in the country, but have allegedly hidden vital information from government. It is also in the light the

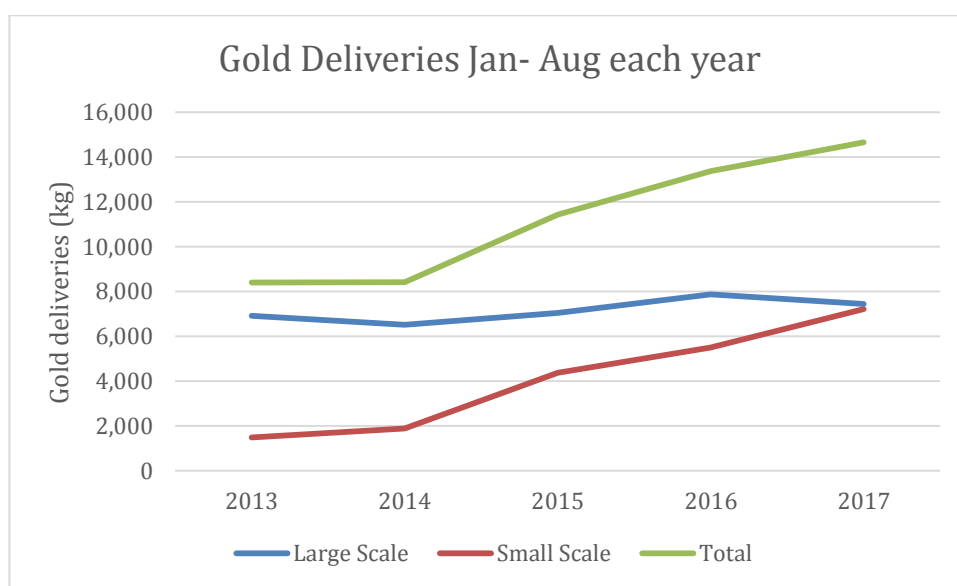


government is now setting up its own exploration company to carry out basic exploration activity. This may suggest that the wish to return to a system where junior private companies with requisite financial and technical capacities are able to conduct significant exploration for new mines may be a pipe dream.

### Gold Production

Gold deliveries to Fidelity Printers and Refiners has been steadily increasing over the years, as is shown in the graph.

This year gold production rose 10% to 14.6t, buoyed by higher output from small and informal producers. Small-scale miners delivered 7.2t of bullion during the period, up from 5.5t the previous year. Deliveries from large producers declined to 7.4t from 7.8t during the same period in 2016. In August 2017 alone, output totalled 2.5t, the highest this year and up from 2.0t in July.



Generally production by small-scale miners has been steadily increasing over the years. Whereas they contributed only 18% in 2013, this has increased to 49% in 2017, proving that the sector is becoming increasingly important.

What is imperative to observe here is that the large-scale miners' production has remained basically the same. This suggests that they have reached their normal productive capacities. While small-scale miners are increasing production, the worrying phenomenon is that on the ground there are no well-organized small mines that can sustain certain levels of production over longer periods of time. Instead the mines are typically artisanal, mostly run on subsistence basis. Thus the apparent rise in production may be fortuitous.

The increase in small-scale gold production is basically attributed to the government programme of gold mobilization that involves teams from the Ministry of Mines, Reserve Bank and the ZRP visiting custom milling centers to ensure compliance with regulations. Fidelity is also paying small-scale and informal producers cash for gold deliveries as it seeks to encourage more gold to be sold via official channels.

There are, however, reports that Zimbabwe is losing an estimated 1000kg of gold annually through side marketing and illicit outflows, especially from custom milling centres and informal gold-panning areas. Speaking at the Institute of Bankers of Zimbabwe (IOBZ) Summer School 2017 in Nyanga, Reserve Bank of Zimbabwe (RBZ) financial intelligence unit's Wonder Kapofu said, "For every gram of gold we hesitate to buy, there is someone from India or Dubai ready to buy it". This is fuelled by the shortage of cash in the formal sector. The Reserve Bank had promised to pay gold miners in US Dollars with a 5% bonus in Bond Notes. This is, however, not happening due to the lack of cash liquidity. The RBZ is only able to pay for a percentage of the deliveries with the rest being paid in Bond Notes, or it has promised to be paid in future. This obviously creates conditions for side marketing.

The presence of numerous disorganized small mines simply point to the potential production that needs to be probed. Hence our wish for the formulation and implementation of policies that would attract basic professional exploration. Some of these artisanal areas could be transformed into medium to large-scale mines that are easier to manage, and whose production trends could be easily predicted to allow for planning of the country's future economy.

### **Turning Challenges into Opportunities**

The prevailing cash shortage in Zimbabwe is often considered to be very unfriendly with respect to safe investment. There is, however, one company that has taken this to be in fact an advantage. Caledonia, whose shares are listed in Toronto, New York and on London's AIM Mining, has indicated that although the cash situation might be serious, this will not deter them from operating in Zimbabwe as they are increasing production and looking for opportunities. Government gives miners preferential status for generating forex. The company has also found it relatively easy to comply with the indigenisation requirement of 51% local ownership. Thus, while some companies might be hesitating to invest, Caledonia is finding the environment favourable and is considering identifying some of the numerous potential areas for expansion.

Meanwhile the company has reported great performance at its Blanket Mine near Gwanda. About 14,389 ounces of gold were produced during the last Quarter, a new production record for the mine. Production during the third Quarter was 15% higher than the previous quarter (Q2 2017) and 7% higher than the corresponding quarter of 2016 (Q3 2016). The improvement in production in the third quarter is expected to continue into the fourth quarter of this year. The Directors of Caledonia are pleased to be able to narrow the range of the 2017 production guidance from 52,000 to 57,000 ounces to a range of between 54,000 and 56,000 ounces. Caledonia remains on track to achieve its production target of 80,000 ounces in 2021.

### **Vast gives Positive Results**

Vast, which has mining investments at the Pickstone-Peerless Gold Mine in Zimbabwe and Manaila Polymetallic Mine in Romania report a great performance in the third quarter of their reporting period in terms of tonnes of ore mined, tonnes milled, and gold produced. The following progress was recorded at the Pickstone-Peerless and Giant Gold Project in Zimbabwe:

- Construction of sulphide plant, which is expected to be completed by the end of December 2017;

- Significant increase in installed primary milling capacity anticipated once sulphide plant is commissioned to 35,000 tonnes per month from the current ~22,800 tonnes per month;
- Mill grade expected to increase from ~2.31g/t gold (Au) to between 3.00g/t and 4.00g/t Au over a 6 to 9-month period as higher-grade sulphide ore is mined and processed, resulting in a significant increase in production;
- Ongoing evaluation of the Giant Gold Project - located 28km from Pickstone-Peerless, which has a current JORC-compliant inferred resource of 500,000oz of gold;
- Relocation of artisanal miners from the Giant Gold Project licence area.

### **Metallon Restructures**

Zimbabwe's largest gold producer, Metallon, has embarked on a major restructuring exercise as a strategy to improve efficiencies to meet growth targets. This will result in unbundling of the four operating mines as separate entities. The company runs four mines namely Shamva, Mazowe, How Mine, and Redwing. These are now operated under separately registered companies namely Goldfields of Shamva, Goldfields of Mazowe, Bulawayo Mining Company and King's Daughter Mining Company respectively. Each company will run its own affairs through a separate board independent of other mines in the group.

### **Forever Diamonds**

Following announcements that the easy-to-mine surficial diamonds in Marange are running out fast, the Zimbabwe Consolidated Diamond Company (ZCDC) is now investing \$30 million in plant and equipment for kimberlite mining. Marange area and surroundings host numerous kimberlites that were discovered by Kimberlitic Searches in the early 2000's. These are, however, said to be younger than the Umkondo conglomerate hosting the Marange diamonds, were generally condemned as being poor in diamond content, and that they could not have been the source of the conglomeratic diamonds. Thus from a geological point of interest, the ages of kimberlites being prepared for mining are important. We wait for elucidation of this important projection by ZCDC geologists.

Meanwhile the ZCDC has already embarked on hardrock mining at Chiadzwa following the commissioning of new plant that can process the conglomerate.

Although the company is producing diamonds, these are not being sold, but are being stockpiled by the RBZ who have funded the mining programme. The reason is that Zimbabwe's diamonds have suffered from a perception of being inherently of poor quality, yet the recent cleaning efforts have shown that the diamonds are just as good as those from regional competitors. The ZCDC is therefore engaging neighbouring countries in an effort to promote the quality of local diamonds. Neighbouring countries are cooperating in this effort as their diamonds were also beginning to be affected by 'cheap' diamonds from Zimbabwe.

The stocking of diamonds could also be inspired by the new thinking, especially by the Singapore Diamond Investment Exchange (SDIX), that "diamonds can be an investor's best friend" to that may rival gold ingots as a safe-haven alternative to cash. Despite diamonds being the world's most concentrated form of wealth, investors have long viewed them as less useful as a store of value than gold. This is because each stone is different, making its value

subjective and therefore difficult to trade. However, technology has solved that problem and diamonds can now become "the new gold". Diamond trading has gradually become more open.

### **Platinum Refinery that Never Was**

If government pronouncements in recent years had been implemented, then this country would by now be moving towards commissioning its own PGMs refinery. The Zimbabwe government has been threatening to impose a 15% tax on exports of unfinished platinum to force companies to further beneficiate the PGMs. However, it now appears that the platinum miners, which include units of Impala Platinum, Anglo Platinum and Sibanye Gold, might be spared from a January 2018 deadline for them to build refineries or risk the 15% tax on non-beneficiated platinum exports because the government is now open to negotiating a new deadline. The apparent new stance by government on its beneficiation requirements follows a visit by Patrick Chinamasa, former Minister of Finance, and Mines Minister Walter Chidakwa to South African refineries and smelters. The visits came after Mimosa threatened to close its operation if the import tax was imposed.

### **Asbestos Mining Again?**

Asbestos used to be the country's largest foreign currency earner until the two mines, Shabanie and Mashava, shut down in 2004 due to lack of capitalization. Some 3000 workers in Zvishavane and about 1500 in Mashava lost their jobs due to the closures.

Apparently the previous owner chose to use the money generated by the two mines to buy several companies at the expense of feeding the 'goose that laid the eggs'. Now the government is planning to re-open the giant mines following identification of an Indian company that is ready to buy 50,000 tonnes of the mine's produce per year. The re-opening will be done in stages, starting with Gaths Mine at Mashava, which is considered to have the least complications.

Workers have, however, expressed skepticism over the plans, dismissing them as the usual vote-buying gimmick that comes towards general elections.

### **The Sleeping Giant in Zimbabwe's Mining Sector**

Zimbabwe is considered to have the world's largest resources of high grade chrome ore, yet in terms of raw chrome and ferrochrome production, the country performs badly. The government is putting in place structures to ensure increased production. The apparent monopoly of Zimasco and ZimAlloys' on chrome production has been neutralised. The two companies have been compelled to cede 50% of their chrome claims to government for issuance to other players. The whole of the Great Dyke is now a reserved area where individuals and companies are applying for special grants to mine chrome ore. As there is anticipation that the exportation of chrome ore will be banned, several companies have indicated that they will establish smelters for the production of ferrochrome. There are already fourteen smelters in operation. It is estimated that there will be massive growth of the chrome industry in response to these measures. The only hope is that the chrome price will not drop significantly.

Meanwhile there has been an outcry by small-scale miners over the pricing of chrome ore by Apple Bridge Investment, a special purpose vehicle established to facilitate chrome ore exports through the Minerals Marketing Corporation (MMCZ). There have been

some contradictions on the mining cost, with MMCZ arguing that the current pricing regime was fair given that miners were mining at a cost of \$80 per tonne. However, the Confederation of Zimbabwe Small-Scale Chrome Miners (CZSSCM) puts the cost at between \$35 and \$40. As such, they want MMCZ to review chrome prices upwards or allow the market to determine the prices.



## **GSZ Research and Development Fund**

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

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## **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](http://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](http://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



## Conferences

### Geological Society of Zimbabwe

## Summer Symposium 2017

**1st December 2017 Department of Geology, University of Zimbabwe**

The Geological Society of Zimbabwe holds an annual symposium towards the end of each year where presenters, from amongst the membership and invited guests, talk on a wide variety of topics of interest to the geological community.

This year the Symposium will be held at the Department of Geology, University of Zimbabwe on the 1st December 2017 starting at 8.00am.

Below is the provisional line-up:

Registration (incl. teas and lunch) \$20 for members (non-members should join)	
<u>Contact:-</u> <a href="mailto:geol.soc.zimbabwe@gmail.com">geol.soc.zimbabwe@gmail.com</a>	
<b>Topic</b>	<b>Speaker</b>
Southern Africa under cover – an integrated geophysical and geological interpretation	Branko Corner
Durchbewegung textures, subterranean sedimentation and the link to mineralisation in the Lufilian Copperbelt	Tony Martin
Mantle Plumes: Fable, Fiction or Fact	Andy Moore
Transtensional tectonics for the 2575Ma Great Dyke and diachronous Chilimanzi Suite plutonism: the end of Macgregor's vertical tectonics.	Mark Tsomondo
The Xade Complex and its place in the Umkondo igneous event	Peter Hildebrand
From Archosaurs to Dinosaurs - the 2017 Expeditions	Tim Broderick
Arcadia Lithium Project	Roger Tyler
Dune Mining at Richards Bay	Ellah Muchemwa
Gold Processing at Cam and Motor Mine	Jonathan Nyagumbo
Challenges Facing Chrome Small-Scale Miners	Nevison Chikwanda

Oil Exploration in the Zambezi Valley	Brent Barber
Airborne Full Tensor Gravity Gradiometry versus Ground Gravity in the search for mineral deposits	Tenyears Gumede
Update on Zimbabwe's new Mining Cadastre System	Bill Feast
Transparency in the Mining Industry	Mary-Jane Ncube
MSU Faculty of Mining & Mineral Processing Engineering	Antony Mamuse

<b>Field Trip - Saturday 2<sup>nd</sup> December to Cam and Motor Mine, Kadoma</b>
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*Please put these dates in you diary now*

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**The 13<sup>th</sup> International Platinum Symposium** will take place at the Ranch Hotel near Polokwane, South Africa from 30<sup>th</sup> June to 6<sup>th</sup> July 2018. There will also be a two day layered igneous rocks symposium immediately before organized by Steve Barnes and Rais Latypov. Field trips will be integrated with the event and post-conference. Contact Prof. Judith Kinnaird, Director EGRI, University of the Witwatersrand, 2050 WITS, South Africa. Tel: +27 (0)11 7176583

The **20th International Sedimentological Congress** will take place in **Quebec City** (Canada) on **13-17 August 2018**. Check the conference website: <http://www.isc2018.org/>

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**GEOLOGICAL SOCIETY OF ZIMBABWE:  
CONTACT DETAILS OF MEMBERS OF THE EXECUTIVE  
COMMITTEE FOR 2017**

NAME	PORTFOLIO	EMAIL
Meck, Maideyi	Chairperson	<a href="mailto:maideyimeck@yahoo.com">maideyimeck@yahoo.com</a>
Duma, Steven	Vice-Chairman & UZ Representative	<a href="mailto:steven.duma@zimplats.com">steven.duma@zimplats.com</a>
Musiwa, Kudzai	Hon. Secretary	<a href="mailto:kudzimusi@gmail.com">kudzimusi@gmail.com</a>
Kuhn, Julie	Administrator	<a href="mailto:geol.soc.zimbabwe@gmail.com">geol.soc.zimbabwe@gmail.com</a>
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du Toit, Andrew	Summer Symposium	<a href="mailto:andrewdutoitzim@gmail.com">andrewdutoitzim@gmail.com</a>
Mugandani, Ernest	ZGS Representative	<a href="mailto:emghans@yahoo.co.uk">emghans@yahoo.co.uk</a>
Bouammar, Houda	Talks & Meetings	<a href="mailto:houda.bouammar@gmail.com">houda.bouammar@gmail.com</a>
Chikandiwa, Nevison	Talks & Meetings	<a href="mailto:wchikandiwa@yahoo.co.uk">wchikandiwa@yahoo.co.uk</a>
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Mugumbate, Forbes	Regional Representative	<a href="mailto:fmugumbate@gmail.com">fmugumbate@gmail.com</a>
Barber, Brent	Professional Registration	<a href="mailto:barber.brent@gmail.com">barber.brent@gmail.com</a>

## Institutional Membership, 2017

Bruker RSA  
 Chamber of Mines of Zimbabwe  
 Freda Rebecca Mine  
 Goldsearch Technical Services  
 Metallon Gold  
 Mimosa  
 Murowa Diamonds (Pvt) Limited  
 New Dawn Mining  
 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