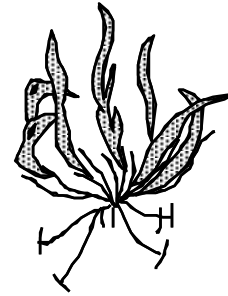


# *Geological Society of Zimbabwe*



## *Newsletter*

June 2015

No. 2 of 3 of 2015



*Fun was had by all who participated in the Chewore dinosaur field trip over the Africa Day weekend  
Photo collage by Andrew du Toit*

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

# Contents

EDITORIAL .....	3
CHAIRMAN'S CHAT .....	4
ARTICLES AND REPORTS	
Geological Society Field Trip to the Chewore Dinosaur Sites – May 2015	
<i>Ali Ait-Kaci</i> .....	5
The Nickeliferous Archean Madziwa Igneous Complex, Northern Zimbabwe: Petrological Evolution, Magmatic Architecture, and Ore Genesis - Abstract	
<i>M.D. Prendergast &amp; A.H. Wilson</i> .....	7
Geological Society of Zimbabwe Annual Symposium 28/11/2014, Geology Department, University of Zimbabwe – <i>Summaries by Ben Mapani</i> .....	8
The History of Mica Mining in Zimbabwe – <i>Tim Broderick</i> .....	9
Citation for the A.E. Phaup Award for 2014 – <i>Forbes Mugumbate</i> .....	12
NEWS	
Geology Department, University of Zimbabwe – <i>Maideyi Meck</i> .....	13
The Professor Tom Blenkinsop UZ Geology Field Trip Fund .....	14
Geological Survey Department – <i>Ernest Mugandani</i> .....	15
Mining Industry News – <i>Forbes Mugumbate</i> .....	16
News about Zim Geoscientists .....	18
CONFERENCES .....	18
ADVERTORIAL 3D Earth Exploration (Pty) Limited .....	19
RESEARCH FUNDING OPPORTUNITIES	
GSZ Research and Development Fund .....	20
SEG Timothy Nutt Scholarship Memorial Fund .....	20
CONTACT DETAILS OF MEMBERS OF THE EXECUTIVE COMMITTEE	21
INSTITUTIONAL MEMBERS, 2015 .....	21

## Editorial

As we welcome our new Chairman, Ali Ait-Kaci, and his Committee into Office, we are pleased to present the first Newsletter under their watch and the second for 2015. A successful and enjoyable AGM on 13<sup>th</sup> March saw Andrew du Toit's Committee stand down followed by dinner, an amusing delivery by Richard Owen on the adventures and phases of his career, and the Society awards. Dr Rubeni Ranganai took the A.E. Phaup Award for the paper adjudged as making the greatest contribution towards the furtherance of Zimbabwe Geology in 2014. We were pleased to have his presence at the dinner, which made the award to him all the more meaningful. Forbes Mugumbate delivered a citation on the winning paper, which is presented elsewhere in this Newsletter. The Mike Vinyu Award is given to the most successful graduating student passing out of the School of Mines in Bulawayo at the end of 2014. This year the award and citation was presented by Edward Gwaze of the School of Mines to Nyasha Natasha Chitsa whose subject passes included three distinctions and her project was on the geotechnical hazard mapping of the K2 Pit at Murowa Diamond Mine. Young Freddy Chikwiri's presentation on "*A comparison between the PGM mineralogy of the pristine sulphide and oxidised ores of the Wedza Subchamber, Great Dyke – Zimbabwe*" was judged by Ben Mapani, our guest of honour, to be the best delivered at the 2014 Summer Symposium on 28<sup>th</sup> November. Congratulations to all recipients for your respective and deserved recognition.

Ben's summary of Andrew's welcome and discussion on the Society Website and Atlas Project is followed by that of the Deputy Minister of Mines and Mineral Resources' opening remarks to the Summer Symposium. This is followed by Tim Broderick's abstract on the *History of Mica Mining in Zimbabwe* as presented at the symposium. Martin Prendergast has sent yet another abstract to disseminate with the Newsletter, this time with Allan Wilson on aspects of the Madziwa nickel deposits.

Dr Maideyi Meck updates us on happenings at the Geology Department at UZ, whilst Forbes Mugumbate details happenings within and affecting the country's mining industry. Ernest Mugandani details the metamorphism taking place in the Geological Survey as the Provincial Mines Offices make their debut. Ernest is now the point man within the Committee as to matters relating to the Newsletter, and I thank him for his efforts in this regard.

*Tim Broderick*



## Chairperson's Chat

*Ali Ait-Kaci*

I am very pleased to write my first "Chairman's Chat" for the GSZ Newsletter. The Newsletter will now bear an issue number relating to the calendar year, No. 2/3 of 2015 in this case.

The new committee and I will do our best to organize as many events as possible during our year of tenure, mainly talks and field trips. Our first field trip took place at the end of May to the Chewore South area, to revisit, after 10 years, the famous Dinosaur Footprint Sites of the Ntunbe River. Our previous chairman, Andrew du Toit, is already at work preparing what will probably be a unique and memorable field trip attached to the Summer Symposium of November 2015.

With respect to talks, we would like to institute a cycle of recurrent talks on Zimbabwean geology. It will help all of us to be aware on what has and is being done in our understanding of Zimbabwean Geology, to share our discoveries and ideas, and to impart our collective experience in the development of a younger generation of Zimbabwean geologists. For this year, two volunteers have already agreed to start the cycle. They are Houda Bouammar on the Zimbabwe Craton and Brent Barber on the Karoo of Zimbabwe. To keep the ball rolling, we need other volunteers to cover the Great Dyke and the metamorphic belts. Any takers? In addition we will initiate the next A.M. Macgregor Memorial Lecture, and hope to involve some guest speaker from abroad.

In 2015, the Society will continue with several projects initiated by previous Committees. We have almost finalized the draft of our own Code of Ethics, which every GSZ Member will have to agree to and abide with. We will continue to investigate ways and means of achieving a Professional Society with Registered Members. The process could be long, difficult and expensive but will stay on our agenda and be followed. Regarding the need to protect and preserve sites of geological interest (i.e Chewore South dinosaur footprints), we are now in close contact with the National Museums and Monuments of Zimbabwe, and a first application will soon be processed.

As usual the Society will help the new generation of geologists through our support of the Mennell Society and by means of the RAND Fund.

Our Society is now officially represented at the Chamber of Mines of Zimbabwe. The GSZ representative will be the Vice-Chairman for the year, currently Brent Barber.

Visit our website at [www.geologicalsociety.org.zw](http://www.geologicalsociety.org.zw) and also relate to our Facebook page.

## Articles and Reports

### GEOLOGICAL SOCIETY FIELD TRIP to the CHEWORE DINOSAUR SITES 23rd – 25th MAY 2015

The Geological Society of Zimbabwe organised a field trip to the Chewore-South Area over the Africa Day long weekend, championed by Ali Ait-Kaci and organised by Gayle Hanssen. A total of 17 people participated.

Departure was on Saturday 23<sup>rd</sup> at 7.30 am from Mazowe Dam. A field guide was distributed to the participants, and thanks are due to the Mining Engineering Institute at UZ for the printing. We drove to Guruve, descended the Escarpment to Mahuwe, passed Mushumbi Pools with our first stop at the Chapoto Gate Fossilised Forest 17km beyond Mushumbi Pools. We then looked for fossil plants within the Alternations Unit of the Angwa Sandstone Formation, stopping a few kilometres after Angwa Bridge. Only one leaf impression was found, presumably *Dicroidium spp.*

We arrived at Mkanga Bridge National Park's Base around 4 pm to complete formalities. A poster on the dinosaur footprints of the area was given by the Society Chairman to the Area Manager. Then we proceeded to the Mana-Angwa hunting camp, where we spent the next two nights. Here thanks are extended to the Safari Hunting Operator, Mr Adrian Read, who allowed us to stay there at almost no cost.



Day-two was the real “Geology and Palaeontology Day”. Our first stop was at the first known dinosaur trackway in the bed of the Ntumbe River that was discovered in 1984, and later in that year was surveyed and described by Tim and Trish Broderick. With some river-sand excavation, thirteen tridactyl prints are currently exposed. In 1990 a total of 45 prints were recorded in this trackway by Operation Raleigh venturers. Then we started the tour of the other dinosaur footprint sites found upstream along the Ntumbe River, and on pavements exposed in its left-bank tributaries. New sites were described in 2001 and have been located

since, and Mkanga Bridge rangers have located more within the last two years. They guided us to almost all of them, including theropod and sauropod trackways and minute tridactyl prints preserved on a rock surface. All these exposures are included in strata of the “Ntumbe Beds” of the Late Jurassic, according to Tim Broderick’s interpretative map of 1987. We also examined friable shales bearing freshwater Conchostracan clam-shrimp fossils, one horizon preserving clusters of these chitin discs together with lepidote fish scales from an armoured fish group known since the Devonian. One of the scales that we found was about 1 cm-long. Almost everybody in the group found something, but as we were returning to the cars, Brent Barber picked up a river cobble preserving numerous lepidotes ganoid scales intact.



Brent Barber’s Lepidote fish fossil from the Ntumbe River

In the afternoon we visited the known Upper Karoo Forest Sandstone bone bed at Mana-Angwa at the confluence with the Maura River. Here *Massospondylus* bones were first described by Mike Raath and others in 1970. The site has been dramatically eroded following the heavy floods experienced in April this year. Many bones that had been seen on previous visits have been washed away. However, remains of a semi-articulated *Massospondylus* fossil high up on the outcrop, with hind limb and rib bones are intact. The location with Mana Angwa Gorge as a backdrop is a wonderful place for a sundowner!

Our trip concluded with an evening braai, star-gazing and so on, before the group returned to Harare on the Monday.

Ali Ait-Kaci, Chairman  
25<sup>th</sup> May, 2015



A pair of newly discovered sauropod footprints at Ntumbe.

## **The Nickeliferous Archean Madziwa Igneous Complex, Northern Zimbabwe: Petrological Evolution, Magmatic Architecture, and Ore Genesis**

*M.D. Prendergast and A.H. Wilson*

### **Abstract**

The nickeliferous Madziwa Igneous Complex consists of several lenticular, mafic-ultramafic enclaves within late Archean gneissic terrain. The lenses of igneous rock are locally deformed and metamorphosed to lower greenschist grade. They are here interpreted to be remnants of a large, composite, magmatic structure with two main components: (1) a set of narrow (10s–100s of meters wide) dikes intruding the gneissic foliation, and (2) a large lopolith made up of leuconorite. Some dikes contain a differentiated and vertically oriented layered suite comprising a central pyroxenite layer, plus norite as both a continuous marginal layer and intermittent layers within the pyroxenite. The pyroxenite-norite suite has a preliminary U-Pb zircon age of 2684 Ma. Other dikes are made up of diorite and/or ferrodiorite; in places, the dioritic rocks also intrude the pyroxenite-norite suite. The leuconorite lopolith transects both the dikes and the gneissic country rocks, its basal contacts with the pyroxenite-norite suite varying locally from intrusive to gradational to (magmatic) erosional. Although modified in places by secondary mobilization, disseminated Ni-Cu sulfides are primarily hosted within the central (ortho- to mesocumulate) pyroxenite adjacent to internal norite layers. Whole-rock geochemical data establish the co-magmatic origin of the principal rock types and indicate an Archean, D-type, basaltic source magma with ca. 8% MgO, the two dioritic rock types representing late, immiscible, silica- and Fe-Ti-P-rich derivatives of pyroxenite-norite(-leuconorite) crystallization. In addition to the major rock types, peridotites occur in several outlying dikes and may represent fractionates of a komatiitic precursor to the basalt. Geologic and geochemical evidence points to bulk assimilation of country rock gneiss by the Madziwa magma and sulfide segregation triggered by felsic contamination. These processes did not occur locally within the dikes but rather in the conduit system prior to the emplacement of the magma charged with sulfide droplets. The unusual vertical layering of the pyroxenite-norite sequence and the localization of the sulfide ores are attributed to the strong outward, cooling gradient across such narrow dikes and to large-scale, lateral movement of sulfide droplets through the solidifying, pyroxene crystal framework ahead of an advancing post-cumulus plagioclase crystallization front.

*Economic Geology*, 2015, **110**, pp. 1295-1312

**Geological Society of Zimbabwe Annual Symposium 28/11/2014**  
**Geology Department, University of Zimbabwe**

*Summaries by Ben Mapani*

***Andrew du Toit, as Chairman opened the Symposium and discussed the new Project on the “Atlas of outcrops in Zimbabwe”.***

This project is open to all geoscientists in Zimbabwe who are working on Zimbabwean geology. The project is interactive on the website, where people can actually enter details, inclusive of descriptions, photos and locations about interesting outcrops and exposures across the whole country. The beauty of this project is how it automatically stores the information in a database and can also be used for searching. Probably its most important aspect will be a wealth of information it will capture for the use and pleasure of present and future geologists. The information can also be used in the planning of field trips within the country.

This project is therefore a resource for field guides, for collaboration and for research. Registered users will benefit from all these advantages. The platform on which the Atlas runs is moderated; which a big advantage as we would love to see some quality and order.

*Andrew’s talk was followed by the official opening address by:*

***The Honourable Deputy Minister of Mines and Mining Development***

Hon Minister Fred Moyo’s speech focused on the point that all easy-to-mine resources are running out in the country, and there was a need to up the geologist’s game to investigate those deposits that are more difficult to uncover. He emphasized that the population of the country like that of several others in the world is increasing, and will need more resources. He gave examples of people mining in the oceans for minerals and are mining under the northern polar region for oil to emphasize the importance that resources are to the human race. He petitioned the geological profession to be aware of these happenings around the world, and to focus on research. Zimbabwe he said is still largely under explored, and there is a need to expand minerals exploration to areas that have not been traditionally regarded as prospective. He asked where the position of Zimbabwe is regarding the mining industry on the world stage. He inferred that Africa is probably carrying the second largest reserves of mineral resources globally and that Zimbabwe has a rich and diverse mineral resource base. He was happy that exports in minerals increased to 3 billion USD, and that mining had rebounded after introducing the new currency regime. However, he admitted that the challenge of direct foreign investment was still a difficult issue.

He challenged the geological fraternity to come up with new strategies towards mineral exploration and to synthesise information available to the mining industry, as future mining is anchored in exploration. He revealed that the Ministry has resuscitated the mining promotion company to encourage private players in the industry, and that the state is also going to invest in the exploration sector. He explained that royalties from mining will be utilized to fund the exploration activities of government. He expects the private sector to complement government’s efforts in this direction and said that the Ministry was in the process of changing the Act in this regard.

The Minister asked why Zimbabwe is poor when it is 6<sup>th</sup> in diamond and 2<sup>nd</sup> in platinum production worldwide. He said that these resources should be leveraged to assist the poor in



the country. He said that there was a need to make mining sustainable and to use it as a catalyst for development of service industries, linking mining with manufacturing and allied industries. He deplored the common feature where African countries were mostly in the extractive industries and never went up the value chain in the minerals they produced.

To achieve high added value to the minerals industry there was a need to develop skills so as to ensure progress in the secondary industries associated with manufacturing. On the issue of title to mining and exploration companies, the Minister said that security of tenure will be restructured soon, and that the system will be simple and easy to understand. A new tax regime will be introduced by March 2015, the Minister added. The idea is to usher in transparency in the mining sector, and he assured the audience that all the Ministry of Mines and Mining Development systems will be computerized to ensure this ideal.

On the issue of small-scale artisanal miners, he said there is a need to have them mine the ore that the large established mines could not deal with profitably. This, he said, would allow them to work low-grade deposits that would create employment. He said this group of miners also requires geological information and invited retired geologists to work with small-scale miners with funding from government.

The Minister said Zimbabwe and South Africa control 90% of the PGM market, and are looking at the means to influence prices to their best advantage. The Minister said with regards to diamonds that geologists have remained quiet and have not provided government with a complete set of information as to the quantity and quality of this resource. He wanted to see more involvement from the geological profession in mining affairs.

The Minister finally revealed that there is a Pan-African Agenda for the building of PAMUST (Pan African Mining University of Science and Technology) in Zimbabwe to be funded by Zimbabwe, the African Union and the World Bank.

## **The History of Mica Mining in Zimbabwe**

*Tim Broderick*  
[makari@zol.co.zw](mailto:makari@zol.co.zw)

Muscovite is the common 'book' mica mined from pegmatites associated with high-grade metamorphic terranes in Zimbabwe. This discussion does not include the mining of lepidolite, vermiculite or any other mineral with a phyllosilicate structure. There is little or no evidence for the fascination or use of 'Lapis Specularis' (stone mirror) in the prehistoric record of Zimbabwe. The early Mbarra people of Hurungwe were known for their skill in metalworking and trade in iron and copper. A police post was established near Hurungwe Hill in 1898, and the 'fly-ridden' area attracted an interest in gold prospecting, being beyond the Angwa diggings. Adventurer Jack Carruthers pegged a mica claim in 1901 near what was to become the Catkin Mine when he was investigating the road and rail routes across the Zambezi to Kafue. Announcing the presence of workable mica, it was not until 1919 that the first sales came from the Zonkosi and Miami claims in what was to become the Miami Mica Field. This was first visited and reported on by H.B. Maufe for the Geological Survey in 1920. Being post-WWI it was not long before a rush for claims took place, but workings were all open-pit and did not exceed a depth of 10 metres. Some of the first shipments of high

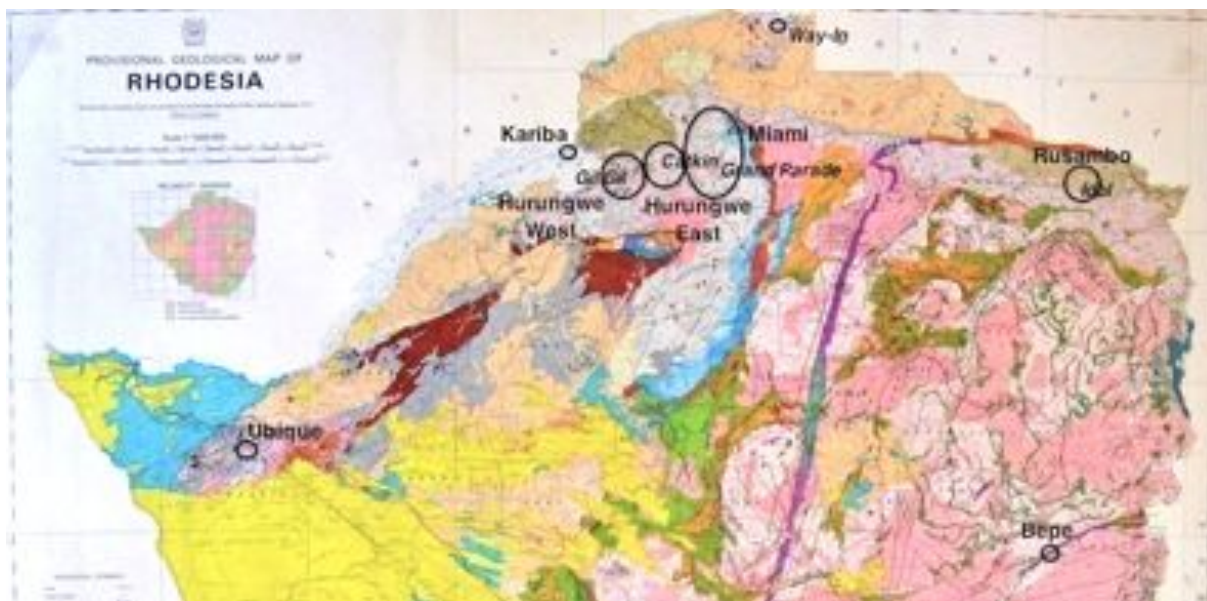
quality cut mica sent to London were valued at £500 per ton. Government assigned mining engineer C.A.B. Colville to the field, and Maufe visited mica mines in India to assess mining methods and tools. He introduced the mica gradeograph as a template to standardize cut mica sizes for the market.

The Grand Parade Mine at Mwami was pegged by W.R. Small in 1919 and acquired by Jack Goldberg, owner of the Grand Hotels in Harare and Kadoma, in August 1920. Setting up a trading store, Jack became the 'Mica King' in Miami, accepting cut mica as currency for goods from prospectors. A hotel, competing stores (Isaac Levy, Sam's father), a butchery, administrative and police posts became established and by 1925 10 to 11 tons of cut mica were shipped monthly. The Grand Parade and Catkin in the East Urungwe Field produced ruby mica, but brown, green and spotted grades were mined from a host of claims. More than 360 people were employed on the Grand Parade, which had ventured underground to a developed depth of 70 metres. Based on an estimate of £400 per ton of cut mica representing 6% of the mined volume, the Grand Parade Mine was valued at £200,000.

However, after 1928 the effects of the Great Depression were felt and by 1931 mica prices had plummeted, causing insolvency and all production on the Goldberg mines ceased, as was the case across the mica fields. The Idol Mine near Rusambo was discovered in 1927, but it too ceased mica production in 1931. A total of 1418 tons of saleable mica from 9686 claims had realized a declared value of £304,907 between 1919 and the end of 1929.

Renewed interest, following the introduction of Government support, took place from 1937 and the years of WW II saw an upsurge in mica production with new mines opening north of the Mukwishe River, and in the West Urungwe Field west of the Catkin Mine. Hugh Trevis took over the old Goldberg stable of mines, and sold to G. Paterson and Sons in June 1945 when Newby Tatham, a mining engineer, started his long association with the Mica Fields to become the next 'Mica King'. He worked closely with John Wiles of the Geological Survey during his 1950's regional mapping of the area. Wiles established the increase of metamorphism in the Piriwiri Group from greenschist to granulite grade, and noted the association of mica-bearing pegmatites with sillimanite-rich schists and gneisses in the upper amphibolite grade of regional metamorphism. He also showed that the pegmatites had assimilated these aluminous metasediments in which mica development is controlled according to zoning in these bodies, notably the wall zones. Mica close to the quartz core is invariably distorted, striated or fishtailed. This understanding greatly facilitated the economics of mining mica pegmatites.

F.F. Chrestian and Co. bought the Paterson mica mines in 1955, when Tatham returned to manage them. The company, with Indian and London roots, were the World's leading mica buyers, and they opened a subsidiary, the Rhodesia Mica Mining Company, with mica buying and grading centres based at Grand Parade and at Madadzi south-east of Karoi. With no new discoveries mica production was from existing mines, with a decreasing availability of ruby-grade mica being realized. All mica production from the Chrestian mines had ceased by the end of 1958 and the company confined itself to mica buying until it was dissolved in October 1959. Their Idol Mine in Chimanda, associated with sillimanite-bearing gneiss of the Rushinga Group, had not fared well during the 1940's. Another well-known mining engineer, Arthur Bensusan with John Wiles, revived production at the Idol between 1955 and 1959, but insufficient reserves were proven resulting in closure.



The 1950's saw a proliferation of claims for beryl, the new space-age ore mineral. Not all mica mines were beryl-bearing but at some, dump discards were hand-cobbed to supplement income. Miami-type pegmatites were estimated to contain 29% of the potential beryl reserve across the country.

Mica mining continued at a slow rate into the 1960's, with much of the mining activity taking place in the West Urungwe Mica Field, notably at Turner's Nzoe Group and Nairn's Gil Gil Mine, the latter having sold over 100 tons of cut product up to 1968. A Mica Research Centre was established at Mwami in 1961 as Government tried to perpetuate interest in the commodity. The Ubuque Mine in the Dete Inlier produced over 100 tons of saleable mica between 1959 and its closure in 1974. The Nyaodza Mica Mining Company made an attempt to open new prospects east of Kariba in 1969 but by 1972, when the writer was mapping in the West Urungwe, there was no mica production. Most mica sold in the 1960's was scrap, available from old dumps. By the end of 1965 a total of 7593 metric tones of cut mica produced since 1919 had been sold for a declared value of Rh\$3,435,356.

It was Henry Martin who recognized the value of scrap and waste mica, of which he harvested many thousands of tones through the 1970s and into the 1980s, using the Turning Point Mine near Mwami as his base. It was Wiles' contention that the full potential for mica production from many mines, including the Grand Parade, had not been realized by the time of closure, and he believed that the Gil Gil Mine in particular could be developed significantly on strike. Indigenous mica miners were encouraged from 1961, and a renewal of small-worker interest could be fostered given the advent of the new Mining Promotion Corporation initiative by Government.

## Citation for the A.E. Phaup Award for 2014

*Forbes Mugumbate*

**Ranganai R.T. 2013.** Structural and subsurface relationships between Fort Rixon – Shangani greenstone belt and the Nalatale pluton, Zimbabwe, as derived from gravity and aeromagnetic data. *South African Journal of Geology*, **116** (2), pp. 273-296.

Dr Rubeni Ranganai is a Zimbabwean geophysicist who is continuing to show great interest in the Archaean geology of this country as is evidenced by the number and quality of scientific papers he has authored or co-authored since completion of his PhD degree on his geophysical investigations across the greenstone terrane of the south-central part of Zimbabwe in 1995. He with Temba Hawadi, the current Director of the Geological Survey, was a pioneering member of the Geophysics Section in the Department. Rubeni is now a member of staff in the Physics Department at the University of Botswana from where he continues in his research studies, having recently published on his work relating to the Masvingo and Filabusi greenstone belts as well as on the Fort Rixon-Shangani belt. It is for this contribution to our continuing knowledge of Zimbabwe Geology that he is being honoured tonight and we are delighted to have Rubeni in our company.

The chosen paper resulted from comprehensive gravity surveys that compliment existing gravity data as well as interpretation of CIDA aeromagnetic data and other existing geological information in providing an integrated model. The data is well presented with maps, diagrams and geophysical sections that are easily comprehended. Ranganai's ideas advance the on-going controversial debate relating to the evolution of the Archaean crust. Many interpretations have only relied on geological, structural and geochronological data, but Rubeni uses geophysical data to compliment and improve on the 3-D interpretation of greenstone belts and related granitoid interactions. He also discusses those relationships between adjacent greenstone belts and the separating granite terrane, and the question of granite emplacement by diapirism and magmatic stoping. His work has revealed the further extent of geological features such as shear zones, regional faults and dykes, and he has added a wealth of new gravity data to the national database.

It is fitting that Dr Ranganai be recognized for his contribution to the furtherance of our knowledge of Zimbabwe's geology.

# News



## Geology Department, University of Zimbabwe

*Maideyi Meck*

The Geology Department continues to survive. We now have three streams of students – 22 in part three and currently on attachment, 27 in second year, and 42 in first year. Authorities are expecting the department to take another 50 students. This is a tall order as the number of teaching staff has not been increased. The logistics of running the largest geology group in the history of the department are being considered.

Most students are doing well, and have been attending talks and trips organized by the Geological Society. Great appreciation for this support is extended to the Geological Society, the mining industry, and to individuals for their assistance. Hats off to the mining industry for taking 19 of our students on attachment. In these hard economic times it is a tremendous effort for companies to absorb such a high number of students.

Dr Nhamo continues as the Chairperson of the department. The department welcomes two new members of staff – Ms Selina Sibanda and Ms Nancy. Dr Njila has been granted tenure so the department now has two permanent members of staff. Contracts for all the other members were renewed.

The department is expecting to welcome back their third year students from attachment and to send out the second year group. We are hoping the mining industry will once again accommodate our students for the crucial experience that they need.

As a Councillor of the GSAf for the Southern African Region (2012-2016) term, Dr Meck will happily forward any news/ discovery from Zimbabwe in the GSAF newsletter as well as news that you want the world to learn about through GSAF

### Contact details:

Name	Position	Other	Email	Cell
Dr Nhamo	Chairperson	Chemistry, UZ	<a href="mailto:lnhamo2@gmail.com">lnhamo2@gmail.com</a>	
Dr M.L. Meck	Lecturer		<a href="mailto:mabvira@science.uz.ac.zw">mabvira@science.uz.ac.zw</a>	0772-906612
Dr T. Njila	Lecturer			
Mr D. Maguze	Chief Technician		<a href="mailto:dmaguze@science.uz.ac.zw">dmaguze@science.uz.ac.zw</a>	0712-639792
Mrs G. Chipari	Secretary, DG		<a href="mailto:gchipari@science.uz.ac.zw">gchipari@science.uz.ac.zw</a>	0772-950681
Dr Ali Ait-Kaci	Chairperson, GSZ		<a href="mailto:ali_aitkaci@yahoo.fr">ali_aitkaci@yahoo.fr</a>	0777-174141
Mr. K. Musiwa	Hon-Secretary, GSZ	Mining, UZ	<a href="mailto:kudzie@eng.uz.ac.zw">kudzie@eng.uz.ac.zw</a>	0772-948915
DG Direct line/Fax:	263-4-303557			

**Note:** DG – Department of Geology; GSZ – Geological Society of Zimbabwe

Other Staff Members at DG: Dr T Mulugheta; Mr T Marova; Mr G Chinoda; Ms D Mudimbu; Ms S. Sibanda; Ms Nancy.

## 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

June 2014



### Cartographic Services

Digital production of base maps, siting of works plans, underground plans and claims plans for use in exploration and mining projects.

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Address : 7 Fairbairn Drive, Mount Pleasant, Harare, Zimbabwe.

**ZIMBABWE**

## *Geological Survey Department*

*Ernest T. Mugandani*

### **STAFFING**

Recruitment of geologists to work in the newly established provincial offices of the Ministry of Mines and Mining Development continues. As all incumbents are inexperienced, having either been in teaching or working in fields unrelated to geology, the Geological Survey is expected to train and orientate them before deployment. This is a challenge, given the numbers involved, and the shortage of resources. These problems have been compounded by recent staff movements that saw **Forbes Mugumbate, Deputy Director**, being appointed Acting Provincial Mining Director for Mashonaland Central while **Sokesimbone Lunga, Principal Geologist**, has been appointed Acting Provincial Mining Director for Matebeleland South. Sokesimbone is already working from Gwanda while Forbes is currently working from Harare prior to establishing office in Bindura.

Meanwhile **Leeroy Chiyama, Geologist**, has resigned from the Ministry for greener pastures having served for only 8 months.

**Temba Hawadi, Director**, and **Ernest Mugandani, Acting Chief Economic Geologist**, attended the 5-day Zimbabwe International Trade Fair (ZITF) in Bulawayo.

### **THE AFRICAN DEVELOPMENT BANK PROJECT**

All the geological and cartographic equipment purchased under the African Development Bank (AfDB) project has been delivered.

Meanwhile suppliers of microscopes and portable XRF devices flew into the country to assemble the equipment and to train members of staff on its operation.

Assembly and training on the use of new geophysical equipment has been completed.

## MINING INDUSTRY NEWS

*Forbes Mugumbate*

### **Diamonds are forever?**

An item that has dominated mining news in Zimbabwe in recent months is government's announcement to collapse all companies involved in the mining of diamonds in Zimbabwe and amalgamate them into one large conglomerate in which the government will have a 50% controlling stake.

This policy has been met with mixed reactions. Government argues that this will bring more transparency and accountability to the sector, and that 'bigger is better'. On the other hand critics to the move equate it to nationalization, and warn of a bleak future for the diamond industry. Companies to be merged have different cultures, philosophies and plans hence the move will be akin to mixing water and oil. Besides, it will be very expensive to come up with each company's worth for the purposes of distribution of the other 50% stake. It is also generally believed that the merger seeks to rescue diamond miners at Marange and Chiadzwa who have literally exhausted the easy-to-mine alluvial deposits.

To show that all is not well in Marange, workers at Mbada, the biggest producer in the diamond field, have gone for eight months without pay. The workers have resorted to strikes, an action that has resulted in them being discharged. Last year the company laid-off hundreds of workers and slashed salaries by half as part of their cost-cutting initiative.

Meanwhile the government has suspended the collection of a 15% tax on diamond sales to stimulate production and attract investment in the sector. This decision was communicated to the International Monetary Fund (IMF) through a letter signed by Finance Minister Patrick Chinamasa and Reserve Bank of Zimbabwe (RBZ) Governor John Mangudya. Companies engaged in local diamond beneficiation have welcomed the tax review, as this will make their business competitive.

Despite the apparent decline in activities in the Marange-Chiadzwa area, the Deputy Minister of Mines and Mining Development, the Hon. Fred Moyo, recently informed Parliament that diamond companies in Marange produced 1.3 million carats of the gem in 2014. The Deputy Minister also revealed that although there was a drop in the volume produced, there was a 14% increase in the price attained for the diamonds.

Announcing a happy ending to the saga involving seizure of 500 000 carats of Zimbabwean diamonds by a group of Dutch farmers who had won a case against Zimbabwe at the International Court for the Settlement of Investment Disputes, the Antwerp World Diamond Centre announced that all the diamonds had been returned to Zimbabwe.

### **Community share ownership trusts**

Community Share Ownership Trusts, which are a vehicle for participation in shareholding in various businesses by local communities, have been plunged into controversy and confusion especially regarding the mining sector. There appears to be lack of clarity on the exact amount pledged by mining companies and the total amount paid to date after information emerged that President Robert Mugabe might have been duped into receiving "fake cheques" during the 2011 launches. This has resulted in government giving Marange diamond mining companies threats and ultimatums to pay up to \$50 million to the Marange-Zimunya Community Share Ownership



Trust or risk confiscation of their minerals. The ultimatum was issued by Manicaland Provincial Affairs Minister of State, Mandi Chimene.

Similarly the Masvingo Province Minister of State, Shuvai Mahofa called for full investigation into the use of funds donated by various companies to the share ownership scheme in the province. Companies in Masvingo Province that pledged to contribute towards the Community Share Ownership Trusts have also been warned, with Bikita Minerals, Lennox Mine, Renco Mine and Murowa Diamond Mine being advised to fulfill their US\$1.5 million pledges made in 2012.

### **A new viable chrome smelting technology?**

A company going by the name of Africa Chrome Fields demonstrated to President Mugabe a ground-breaking chrome smelting technology, the exothermic (aluminothermic) process that is reputed to drastically reduce the time taken to refine chrome from the traditional six hours to less than a minute. The smelting technology demonstrated in Kwekwe is meant to enhance the country's value addition and beneficiation thrust. However, some critics have indicated that this is technology that has only worked under laboratory-scale conditions. It is a very dangerous technology that can cause terrific explosions, and thus should be widely tested before it can be subjected to commercial use.

### **Exploration and mine development**

The granting of new EPOs by the Mining Affairs Board remains suspended, ostensibly to allow clearance of a backlog of applications, some of which date back to 2004. The only Orders to have been granted recently were the four announced in April 2014. Regional mineral exploration has therefore virtually ceased. The consequences of this hiatus must be serious.

Recent newspaper reports referring to invasions of the Pickstone-Peerless Claims, Eureka Mine, and other mining areas such as Freda-Rebecca by illegal miners, apparently encouraged by certain politicians, must be concerning as security of tenure is threatened.

African Consolidated Resources (ACR) had planned to commission its first gold mine in Zimbabwe at the Pickstone-Peerless Claims south of Chegutu in the second half of 2015. The company was to start by treating the oxide cap with resources estimated to last 6 years. This would be followed by developing what would be one of the largest open pit gold mines in the world in the extraction of sulphide ore. Preparations to resume mining operations at Eureka in Guruve are also in progress. These projects could be jeopardized by the illegal miner invasions.

### **Sengwa Power Station**

After years on the drawing board, RioZim Ltd has announced that it wants to work with state-owned power utilities in South Africa and Namibia to build a 1400-megawatt electricity plant near its Sengwa coalfield. The US\$2.1 billion thermal power plant would produce electricity for RioZim's mines and sell the excess back to state-owned utilities such as South Africa's Eskom Holdings SOC Ltd. and Namibia Power Corp. With the frequent power cuts being experienced everywhere these days, we can only hope that this is not just more rhetorical talk.

### **Mimosa's donation to the School of Mines**

Zvishavane-based platinum miner, Mimosa has donated mining equipment comprising a \$70,000 conveyor belt to the Zimbabwe School of Mines as part of efforts to help develop skills required in the mining sector. The company has in the past donated administration equipment, learning aides as well as comprehensive scholarship programmes and infrastructure to various organizations including the Zvishavane Resource Centre, University of Zimbabwe, Great Zimbabwe University and the

Midlands State University. This is commendable especially at this time of economic hardship. Other companies are called upon to emulate.

## **News about Zim Geoscientists**

**We hope your contributions may improve with the Facebook initiative. Talk to you on the Geological Society of Zimbabwe Group, an open link. Join us there for better communication.**

**Please provide us with news about yourself or other geologists. We need to keep in touch with all of you out there. E-mail: [ali\\_aitkaci@yahoo.fr](mailto:ali_aitkaci@yahoo.fr) or [makari@zol.co.zw](mailto:makari@zol.co.zw)**

## **Conferences**

**Groundwater: From Theory to Action.** 14<sup>th</sup> Biennial Ground Water Division Conference and Exhibition, Muldersdrift, South Africa – 21-23 September, 2015. Contact Conference Secretariat, Geological Society of South Africa at [info@gwd.org.za](mailto:info@gwd.org.za)

The Southern African Institute of Mining and Metallurgy (SAIMM), the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) and the Australasian Institute of Mining and Metallurgy (AusIMM) will jointly convene a **World Gold Conference** at Misty Hills, Gauteng, South Africa in September 2015. Contact: [camielah@saimm.co.za](mailto:camielah@saimm.co.za)

**The 23<sup>rd</sup> International Geological Congress**, Cape Town, South Africa – 2016.

# 3D EARTH EXPLORATION (Pty) LIMITED

*Geophysical Contractors & Mineral Exploration Consultants*

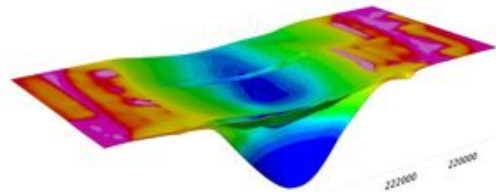
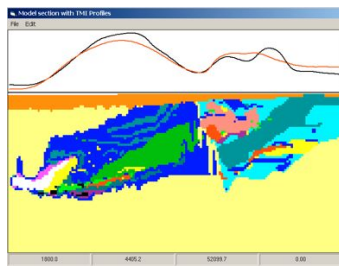
3D Earth Exploration is a Botswana-registered company operating in the Africa theatre and provides the following services:

- Ground geophysics surveys
- Physical rock properties measurements ...&... 3D Data processing and interpretation

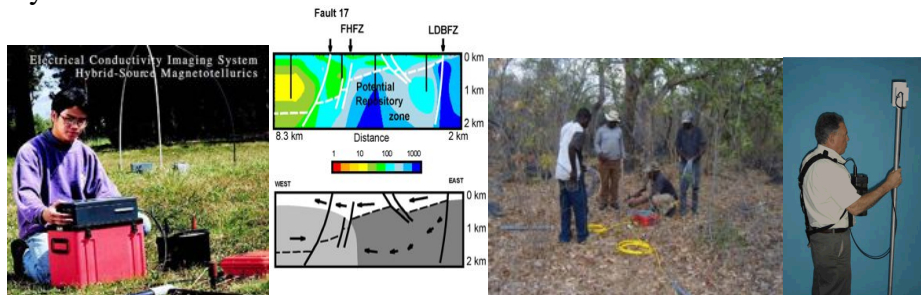


GDD MPP-EM2S+ Magnetic susceptibility and conductivity probe and axim .....Onsite data processing

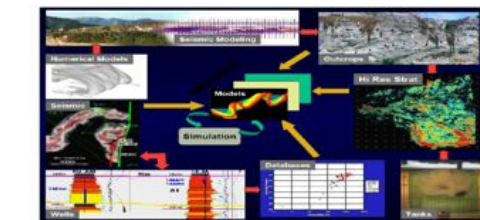
- 3D magnetic and gravity data modelling



- CSAMT, ground magnetic surveys, Induced Polarisation, gravity (CG3/5, La Coste), rock properties, EM, GPR, radiometrics and a wide range of other ground geophysics surveys.



- 3D Data integration and visualisation



**CONTACT:**

*For more information please contact Mr Hillary Gumbo +263-772-566912, email: [hgumbo@mweb.co.zw](mailto:hgumbo@mweb.co.zw)*



## **GSZ Research and Development Fund**

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



## **SEG Timothy Nutt Scholarship 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.

# 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 year-end.

# 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.

See the Society of Economic Geologists website for further details and the next call for applications.

<b>GEOLOGICAL SOCIETY OF ZIMBABWE: CONTACT DETAILS OF MEMBERS OF THE EXECUTIVE COMMITTEE FOR 2015</b>		
<b>NAME</b>	<b>PORTFOLIO</b>	<b>EMAIL</b>
Ait Kaci Ahmed, Ali	Chairman	<a href="mailto:ali_aitkaci@yahoo.fr">ali_aitkaci@yahoo.fr</a>
Barber, Brent	Vice-Chairman	<a href="mailto:barber.brent@gmail.com">barber.brent@gmail.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>
Mwatahwa, Collins	Hon. Treasurer	<a href="mailto:cmwatahwa@angloplat.co.zw">cmwatahwa@angloplat.co.zw</a>
Chatora, Daniel		<a href="mailto:dchatora@gmail.com">dchatora@gmail.com</a>
du Toit, Andrew	Summer Symposium	<a href="mailto:andrewdutoitzim@gmail.com">andrewdutoitzim@gmail.com</a>
Hanssen, Gayle		<a href="mailto:gaylehanssen@gmail.com">gaylehanssen@gmail.com</a>
Matthews, Paul	Matabeleland Representative	<a href="mailto:pmatthews2904@gmail.com">pmatthews2904@gmail.com</a>
Meck, Maideyi	UZ Representative	<a href="mailto:maideyimeck@yahoo.com">maideyimeck@yahoo.com</a>
Mugandani, Ernest	Newsletter	<a href="mailto:emghans@yahoo.co.uk">emghans@yahoo.co.uk</a>
Mugumbate, Forbes	Geological Survey Representative	<a href="mailto:fmugumbate@gmail.com">fmugumbate@gmail.com</a>

## Institutional Membership, 2015

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 Chamber of Mines of Zimbabwe  
 Goldsearch Technical Services  
 Marowa Diamonds (Pvt) Limited  
 Samrec Vermiculite Zimbabwe (Pvt) Limited  
 SMC Drilling  
 Unki Mines (Pvt) Limited  
 Zimbabwe Mining Development Corporation  
 Zimbabwe Mining Investments  
 Zimbabwe Platinum Mines Limited