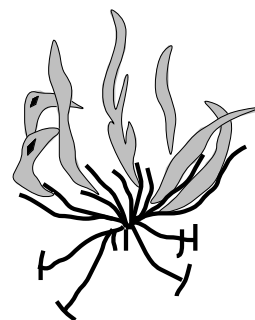
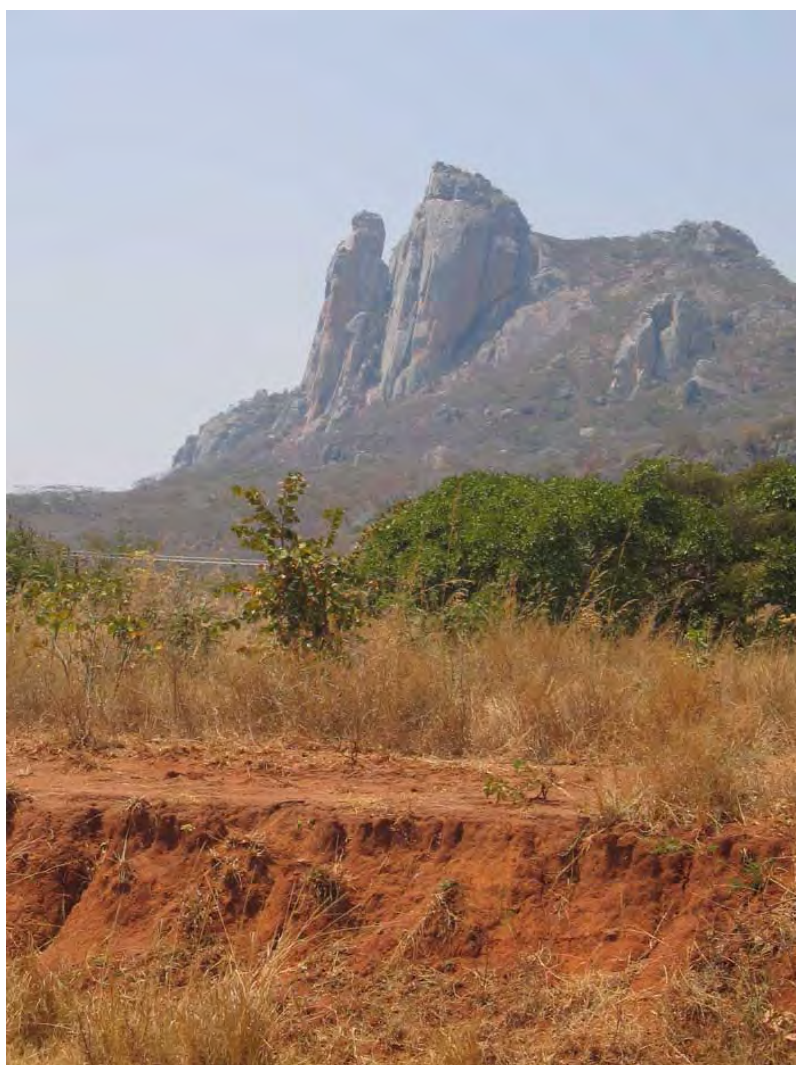

Geological Society of Zimbabwe



Newsletter



June 2007



Banji – Chiweshe North

Photo: PMB

THE GEOLOGICAL SOCIETY OF ZIMBABWE, P.O. BOX CY 1719, CAUSEWAY, HARARE

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Editorial

At last we have achieved the current Committee’s first Newsletter for 2007. Our thanks are expressed to all contributors, for their efforts are the only way we can compile a newsworthy document. I hope you enjoy this presentation even though the overall message well and truly expresses our collective predicament as geologists and miners in Zimbabwe, 2007. Let us take note and work towards solving our problems, and perhaps some of us, and others in the precarious driving seat, will comprehend our folly and steer towards a pragmatic outcome. Our country needs sound leadership as never before. Let us see statesmanship – our CRY is here to read. The whole fabric of the mining industry is under threat. Can we save our service and teaching institutions? Can we save our professionalism? We are losing skills faster than they can be replaced, like rats leaping off the proverbial sinking ship, so those who are outside – don’t forget your home support, or it is



‘Back to Basics – Portal’ – Karl Mauch Exhibition, 2007

As promised, the Committee announces the quarterly subscription increase for June 2007. The fees are now:

Individual and Associate Membership	Z\$80,000.00
Institutional Membership	Z\$600,000.00
Extraterritorial Membership	\$US20.00 or Rand/Pound/Euro equivalent

Please respond with your payments for this year. It is only you, the Member, who makes your Society viable.

The Committee, on behalf of the Geological Society of Zimbabwe, would like to offer a sincere vote of thanks to Marion de Beer of *Cadline* for preparing and printing our Phaup and Bond Award certificates for 2005 and 2006 -- free of charge. This is a wonderful gesture of Marion’s time and skills and we can only encourage all you geologists and mining houses to steer your Autocad mapping work in her direction and to take advantage of, to my certain knowledge, at least 30 years of hard-won cartographic experience. Cadline also offers monochrome printing and scanning services in formats up to A0. Their telephone contact is 04-744068 and the address is 25 Clairwood Road, Alexander Park in Harare.

Tim Broderick



Chairman's Chat

Kudzie Musiwa

I would like to thank the 2006/2007 Committee, chaired by Hilary Gumbo, for a splendid job during their term of office. Despite all the hardships, which were compounded by raging inflation, in particular scarce and expensive fuel, the Society managed to organise field trips, talks and a successful Summer Symposium in Harare. All these events were well organised and attended.

The success of the 2006/2007 Committee, leaves the 2007/2008 Committee with the mammoth task of maintaining the high standards set in the prevailing harsh economic environment and in a situation where most of our membership is trying to leave the country for more secure opportunities. I hope the momentum will be maintained with the assistance of most of the members coming through from the previous committee for this year. Your Committee and their functions are detailed at the end of the Newsletter.

We will continue to press for the atlas project, publication of the 1: 1 million geological map of Zimbabwe and the UZ Lecture Fund. The Geology Department continues to experience an exodus of lecturers for greener pastures and the Society will mobilise industry and its membership outside the country to support the Department in cash and kind. Apart from Geology, the Metallurgical and Mining Engineering departments are also experiencing this exodus and will be included in the UZ Lecture Fund drive. Though this will be an uphill task, it will be the priority of my Committee because, if nothing is done now, the three departments might close and this will have a serious impact on the mining industry.

The A.M. Macgregor Memorial Lecture will be presented this year in both Bulawayo and Harare and the venues and presenter will be announced following nomination acceptance. A pre-lecture trip, possibly involving international participants, is under consideration to visit the platinum mines down the Dyke.

It has come to the attention of the Society that there are non-Geological Society of Zimbabwe members who are applying for job vacancies and claiming that they are members on their CV. As a Society we are taking this seriously and we will only give references to those members who are of good standing and are paid up. I am therefore appealing to those who have not responded to pay their subscriptions and renewed their membership, which is undertaken annually. The revised membership fees for 2007 are published on our website and in this newsletter.

The success of your Committee relies on all of you being active and giving input and ideas to our activities. I hope you will continue to support your Society wherever you are.

The newsletter editors are Tim Broderick (jpaa@mweb.co.zw), Nyikadzino Matura (nematura@science.uz.ac.zw) and Forbes Mugumbate (zgs@africaonline.co.zw). Please send articles to be included in the next issue of the GSZ.

Articles and Reports

The Applied Geochemistry Group, Imperial College and John Webb (1920 – 2 April, 2007) Remembered

Keith Viewing, AGRG 1960-63

The core yard glittered at noon, but there was no sign of drill-core or of the enthusiasts associated with it. The group from Geology at the great Mufulira Copper Mine, Zambia, was found crowded in a small room with a rough wooden bench and a sink. Silence; a slight man, topped by dark hair and vivid brown eyes, shook two handfuls of test tubes back and forth from chest to shoulder, and the only sound was the swish of bubbles in the tubes and the gasp of breath from John Webb. The magic continued for two minutes exactly and that was the start of a strong bond with Rhodesian Selection Trust. That company was formed by Sir Alfred Chester Beatty to exploit the copper deposits, and joint ventures with Anglo American Corporation on all six mines achieved a yield of 650 000 t copper pa.

The test tubes contained a green organic reagent, a buffer to control the pH, and a sample of soil. There were all shades from green to pink as we saw for the first time, a simple chemical analysis of copper in the range from say 25 to 500 ppm. This was magic indeed, a practical and cheap field method to reach beneath the overburden and indicate hidden deposits in the weathered rock, say 15 m below. Some of the ideas were from antiquity, many from a steady trickle of translations from Russia, but the inspiration was at first from Herbert Hawkes of the U.S. Geological Survey in a test of drainage sampling in New Brunswick.

Back at the Royal School of Mines John Webb had built a research group of geologists supported by an unusual chemical analysis laboratory, led by Ronald Stanton. The newcomer simply joined the group, studied the literature and trained in trace metal analysis for about five months. Much depended upon whether the method tested in the laboratory would work in the field, whether rainforest or the outback, for each project was designed to discover the extent of the geochemical dispersion from a mineral deposit, or small mine. The student mapped the deposit and the potential extensions, and collected and prepared the samples. A rudimentary laboratory was arranged under a tree or canvas, the balance and primus stove were leveled, and the reagents and standards prepared on a rudimentary table. The target for the first eight years, until AAS was re-invented and practical by 1963, was to analyse 100 samples per man/day. You had to get that right, you and your dozen or so porters who were away for six months at a time. You were on your own and there was no need for any additional motivation.

During this early phase of the work, John Webb, John Tooms and Ron Stanton had focused on copper, cobalt and vanadium in Zambia; arsenic, beryllium and chromium in Zimbabwe; lead and tantalum in Nigeria; lead in Tanzania, and manganese in Guyana. Studies of geochemical dispersions and the analytical methods were well advanced in the U.S. Geological Survey and in Russia, where a huge investment was in progress, but translations were rare. Colonial Africa of the times was untouched, and there was the opportunity.

The philosophy was developed too. Deposits of precious and base metals are often within a mineral province and a geochemical province might be found to skirt both, and include for example deposits blind at the surface. The advantage therefore, was inexpensive low-density drainage sampling and multi-element chemical analysis to discriminate between the

geochemistry of the bedrock and discrete metal deposits. Arc -emission spectroscopy was quick, inexpensive, and semi-quantitative so that much depended upon the interpretation of the results.

Small and large scale tests in Zambia revealed traps for the unwary. Significant differences were found between the total and part-extractable metal contents of weathered rocks, and a huge bias could result from the matrix effects of silica and iron in spectroscopy. But successful and large-scale tests covered huge tracts of central Sierra Leone where the rainforest obscures most of the ancient rocks that have a potential for gold, chromium, copper and nickel accumulation.

That was an exciting time, and more was to come as John Webb returned from lunch with Sir Alfred Chester Beatty on another well-remembered day. A mutual interest was found in the effects of trace metals and animal health. The regional geochemical maps of England, Wales and Northern Ireland were planned, and patterns of cobalt, copper, molybdenum and selenium were of real concern to the health of animals. Arsenic, lead and selenium were of serious concern to man. There was a steady demand for new reservoirs and the catchments would need to be planned accordingly. The scope was huge and environmental geochemistry took the lead.

Next and much more difficult, were the studies of metal dispersions on the ocean floor and the search for metals through a cover of arid and even desert terrain using gas for detection. For example, how do you search on the surface of an active sand dune that obscures a mantle of leached soil and weathered rock that could be 100 m thick, or more? Alternatively, how do you deal with intensely leached iron oxide found as a few grains on the surface that could indicate a great nickel-copper deposit below?

And all of that from a few small rooms on the 4th Floor of the Royal School of Mines; a leader in the field that moved with the times. At first a few test tubes in the bush, then the use of progressively more modern but practical equipment in a base laboratory. The fun of immediate results was lost, but now rigorous standard samples controlled the results and interpretation became an art beyond statistics, but of absorbing interest to the few.

Bravo for John Webb and his team, bravo for John Sutton, Dean of the RSM, and for Imperial College that encouraged the closest connection with industry.

Chairman's Report, 2006

1. Introduction

Ladies and Gentlemen, I would like to welcome you all to this year's Annual General Meeting. A special welcome to our guests of honour, the Dean of Science Dr Teddy Zengeni, the Chamber of Mines President, Mr Jack Murehwa, representatives of the School of Mines and our guest speaker Forbes Mugumbate.

It has been a very exciting year for myself and for members of my committee, especially as we all experienced and enjoyed overwhelming support from our members. Much was done, but there is still a lot to be done.

Things are moving in the region. We experienced earthquake activity in Zimbabwe and adjacent Mozambique in the early part of 2006, and took it upon ourselves as a society to inform our members in the May Newsletter.

Despite the continued slide in our economy, most mines continued to operate albeit at a slow rate. Exploration has almost ground to a halt as no new licenses have been issued for some time now and only a few EPO's remain current. However, much of the prospective ground in Zimbabwe is covered by new applications still to be gazetted. We hope that the new mining law will be promulgated soon in order to get things moving positively.

The "look east" policy has seen a lot of foreign investors from China, Russia and India showing an interest in investing in Zimbabwe. We wait to see the fruition of this interest.

Small-scale miners have been severely affected by the "Chikorokoza Chapera" operation, which has seen most informal operations grinding to a halt. EIA reports are now being demanded from virtually everybody who owns a claim, a requirement that may take years to for completion as there is no capacity to conduct and approve these requirements.

In 2006, we experienced a number of "rushes" in Zimbabwe. The biggest of them all is that to the Marange diamonds, with unconfirmed reports of some of the diamonds reaching "black" markets in UK. Before this was the Chimanimani gold rush in the "Mbare" area of the Tarka Forest. Other rushes, including for coal, coal-bed methane and uranium have also been reported and we hope to hear more about them later from Forbes. Beware of false rushes such as that reported in the *Sunday News* of 11th February under their headline, "Foreigners exploit diamonds in Plumtree". Diamond drilling does not constitute diamond mining!

2. The 2006 Committee

Our committee members are Gayle Hanssen (Honorary Secretary), Kudzi Musiiwa (Vice-Chairman & Summer Symposium), Collins Mwatawa (Treasurer), Tim Broderick/Nyikadzino Matura (Newsletter editors), Andrew du Toit (Summer Symposium), Dennis Shoko (1:1 million map), Joseph Hwata (Byo Representative), Desire Chikutiro (Midlands Representative), Temba Hawadi (ZGS Representative) and Seedwell Ravengai

A total of 11 committee meetings were held and members attendance was as follows:

H. Gumbo (10), Gayle Hanssen (9), Collins Mwatawa (11), Kudzi Musiiwa (11), Tim Broderick (10), Nyikadzino Matura (7), Andrew du Toit (6), Dennis Shoko (2), Joseph Hwata (1), Desire Chikutiro (2), ZGS (4) and Seedwell Ravengai (1).

With the exclusion of Seedwell, who resigned after transferring out of town, there has been a 61% average attendance. Well done to all.

3. Membership

Paid up membership stands at 116 ordinary, 3 associate and 16 institutional. Of these, 11 are foreign. We have a total of 12 honorary members, Tim Broderick being the newest on the list.

Attendance to our talks was generally high averaging around 20. The Summer Symposium had 63 people! A very good show of support!

4. Affiliated Organisations

4.1 The Mennell Society

Due to exams and holidays the Mennell Society representatives did not attend any of our committee meetings as is normally the case.

4.2 Zimbabwe School of Mines

This year the Society was represented on the School of Mines Board by Luckson Manda and Joseph Hwata. Nyikadzino Matura and Kudzi also sit on this Board as representatives of their respective departments at UZ.

4.3 South Africa/Namibia Sub-branches

Paul Dirks is looking at the possibility of setting up a South African sub-branch for the Geological Society as there are quite a number of Zimbabwean geologists working there that are interested in participating. A recent communication from Leonard Mafurutu suggests that moves are afoot both in South Africa and Namibia. Relating to the formation of the branch formed and we await details of its constitution, subs structure and membership numbers.

5. Society Activities

5.1 Talks

A total of 8 talks were presented and are as follows:

1. 24th March 2006; "Snakes Head Platinum Project, The drilling logistics – A complex programme completed within budget under very difficult circumstances", by H. N. Gumbo.
2. 2nd June 2006; "An Environmental Scan of the Zimbabwe Mining Industry – implications to Exploration and Mining Investment", by Luckson Manda from Canister Resources.
3. 21st July 2006; "The Redox State of the Precambrian Ocean and Atmosphere: Implications for Mineral Deposits", by Dr Andrey Bekker from the Carnegie Institution of Washington.
4. 28th July 2006; "Environmental and Health implications of mercury use in small-scale gold mining", by Dr Dennis Shoko from UNDP/UZ.
5. 25th August 2006; "Karoo geology – with particular reference to the Hwange Coalfields", by Dr Oliver Maponga of Hwange Colliery.
6. 8th September 2006; "The geology and genesis of high-grade BIF-hosted iron ore deposits", by Prof Nic Beukes, RSA/SEG.
7. 16th October 2006; "Modern chemical analytic methods for Au and PGEs and an introduction to partial geochemistry", by Mr John Flynn of Genalysis Laboratory, Australia.
8. 27th October 2006; "Research on oxide ores of the MSZ", by Dr Thomas Oberthur from the BGR, Germany.

5.2 Field Trips

A double field trip was made to Chimanimani and Marange on the 29th and 30th July, respectively.

The Murowa trip planned sometime in July was cancelled at the last minute by our hosts. We hope this very interesting trip will be possible this year.

Other trips that were planned but did not materialise due to cancellation were to Circle Cement's Sternblick Quarry, How Mine, Mimosa Mine, the Antech laboratory and Globe & Phoenix Mine and to the Belingwe Greenstone Belt. We hope these and others may be possible this year. Often, the problem with organising field trips is the availability and cost of fuel.

An inquiry was made about a possible visit to Albidon's Munali Nickel Project in Zambia. Unfortunately no response came from the people approached, as they may have been busy in finalising their feasibility study. It would be a good thing to have at least one regional field trip a year for obvious benefit to members, especially once we have sub-branches in SA and Namibia.

5.3 The Summer Symposium

This was held at the UZ Geology Department on 1st December 2006. The 2005 Symposium had been held for the first time in Bulawayo. The event will now alternate between the two cities in order to reach out to more of our members. Other than the AGM, it is the most important event on our calendar as it gives our members a good insight into what is happening within our industry and the science of geology in general. I would like to suggest that future symposium organizers should also look for papers within the SADC in order to appraise those of us still working locally of new projects in the region.

The Summer Symposium was opened by Mr Jack Murehwa in his capacity as President of the Chamber of Mines and as Chief Operating Officer for Zimplats. The Chairman presented him with a GSZ tie and a Summer Symposium 2006 mug, which were on sale at the event. After the opening of the Summer Symposium he went on and presented 45 computers to various science departments at UZ, including Geology, Mining Engineering and Metallurgy.

A total of 18 papers were presented by a variety of speakers. All were very interesting, including one by Martin Roberts of De Beers on the genesis of the Marange diamonds. Many of the abstracts and Martin's summary were published in our February Newsletter.

6. Sub-Committee Activities

6.1 UZ Lecture Fund (H. N. Gumbo, N. Matura, Collins Mwatawa)

Table 1: Summary of the State of the UZ Geology Dept Staffing & Other Requirements as at 31st May 2006

Item	Academic/ Non- Academic	Under/ Post Graduate	Current Level	Normal Level	Deficit
Professor Chair	Academic	Both	0	1	1
Economic Geologists	Academic	Both	1	3	2
Igneous petrologists	Academic	Both	1	2	1
Metamorphic petrologists	Academic	Both	0	2	2
Hydrogeologists/ Sedimentologists	Academic	Both	3	3	0
Structural Geologists	Academic	Both	1	2	1
Environmental Geologists	Academic	Both	1	1	0
Remote sensing and GIS	Academic	Both	0	1	1

Computer Geologists	Academic	Both	0	1	1
Mineralogists	Academic	Both	0	1	1
Subtotal	Academic		7	17	10
Chief Technician	Non-academic		1	1	0
Mineral separation technician	Non-academic		0	1	1
Rock cutting and Thin section Making Technicians	Non-academic		2	2	0
Wet Chemistry Lab. Technicians	Non-academic		1	2	1
Librarian	Non-academic		1	1	0
Photographer/ Rock store Technician	Non-academic		1	1	0
Departmental Secretary	Non-academic		1	1	0
Cleaner	Non-academic		1	1	0
Laboratory Assistants	Non-academic		1	2	1
Subtotal	Non-academic		9	12	3
Digital camera			0	1	1
LCD for power point presentation			0	1	1
Hand Held GPS			1	5	4
Diesel for field trips per year			1000 litres	5000 litres	4000litres
Field trips per year		Undergraduates (1 st years -3 days, 2 nd yrs-14 days, 3 rd yrs 14 days)	14 days	31 days	17 days
Field trips		4 th year Honours	20 days	30 days	10 days
Protective clothing for mine visits			0	50 g/boots, 50 overalls, 50 helmets, 50 belts	50 g/boots, 50 overalls, 50 helmets, 50 belts
Computers for teaching			2	15	13

Student Enrolment: Part I	70	70	0
Part II	20	35	15
Part III	16	35	19
Honours (Part IV)	5	10	5

Table 2: Annual Supplementary Budget Estimate for the Department to Function Normally

Item	No of Items	Cost per Item	Total cost per year
Field trips	31 days for undergraduates	US\$ 500-00	US\$ 15 500-00
	30 days for 4 th year Honours	US\$ 700-00	US\$ 21 000-00
Professor	1	US\$6000-00 per month	US\$ 72 000-00
Part-time lecturers	500 hours	US\$25-00	US\$ 12 500-00
Grant Total			US\$121 000-00

Notes:

Note some items such as diesel, computers, protective clothing, GPSs and LCDs have not been included in the budget as their prices are highly variable and they can be donated in kind.

There is already has a Department of Geology Trust Fund a/c held with Stanbic Bank which is managed by the Chamber of Mines into which all donated funds are to be deposited.

The table above clearly shows the state of the UZ Geology Department.

The subcommittee initiated negotiations for funding by compiling a document on the state of the Department and highlighted the following points:

- The UZ Geology Department is near collapse due to the mass exodus of both academic and non-academic staff
- The Geological Society of Zimbabwe is making an effort to save it from total collapse.
- Support from government, the mining industry, financial institutions and other donors in cash or kind is urgently needed.
- The UZ Geology Department offers BSc, BSc Honours and other post-graduate degrees in geology, mining engineering, environmental and water resources management relevant to the needs of the mining industry in Zimbabwe and the region.
- The Department also offers other services to industry such as preparation of thin and polished sections, mineral grain separation, wet chemistry analysis, consultancy in EIA's, petrography, ore deposit mapping and evaluation, and the siting and drilling of water boreholes through its non-academic and academic units.
- Out of a normal academic staff compliment of 17 lecturers, there are only seven left in the Department. Only one of these has a PhD.
- Currently the Department has 9 non-academic staff posts filled out of the 12 available.
- Funding for student field trips is low resulting in their duration being cut from 14 to 6 days.
- The honours course has been cancelled at times due to lack of funding.
- Initial assistance could start with funding or secondment of part-time lecturers from other UZ departments and industry.
- The industry could also collaborate with the Department in carrying out research work in geologically interesting areas such as on the occurrence and genesis of gold in the Chimanimani area.
- Support for field trips can be in cash or kind and may include the provision of fuel.
- If there are surplus funds, they could also be used to top up existing staff remuneration in the form of allowances.

- Industry could support non-academic staff by giving them work to do such as thin-section work, mineral separation, wet chemistry from which payment they would get a bonus.
- Overall, the equivalent of about USD121 000 a year is estimated as being required in order to keep the Department on its feet.

This was followed up by a series of meetings with stakeholders, which included the Permanent Secretary of the Ministry of Mines, the Chamber of Mines CEO and a number of mining company officials.

The Permanent Secretary of Mines was very enthusiastic about the project. He promised to give it his full support in appraising government, including institutions like the Reserve Bank. He suggested soliciting funds from organisations like SADC. The incoming committee should follow this up.

The various mining houses met were also supportive of the initiative, but seemed keener to participate on a collective basis. We then decided to direct our efforts more to engaging these companies through the Chamber of Mines.

The Chamber of Mine's CEO liked the idea very much and promised to support the effort both as an organisation as well as in his individual capacity. We were invited to give a presentation to the Chamber of Mines Executive Committee, which we did. The committee was very keen on pursuing the ideas and recommendations we made and more. The members would also like to fund and assist the Mining Engineering and Metallurgy departments. The formation of a Faculty of Earth Sciences was also suggested. Such a faculty would make it easier to support and manage these departments.

The last meeting of the Chamber of Mines Executive Committee held on 12th December, 2006 set up a sub-committee to look into and implement the assistance to the Geology, Mining Engineering and Metallurgy departments.

As a result of the GSZ presentation to the Chamber of Mines executive Committee, Zimplats donated 45 computers to departments in the UZ Faculty of Science. The departments of Geology, Mining Engineering and Metallurgy each got 9 computers!

At a meeting with Metallon Zimbabwe Limited, Paul Chimbodza personally donated 100 litres of diesel to the Department and promised to discuss our project with management and see how they could assist.

Rio Tinto Zimbabwe's CEO, Paul Hacman has approached the UZ to fund post-graduate studies in a number of science departments, including honours courses in geology, geophysics, mining engineering, electrical engineering and at the IMR. A sub-committee has been set up consisting of the various departmental chairmen and is chaired by Kudzi Musiiwa of Mining Engineering. A MOU with RTZ will be signed soon. This is a very interesting development as it sets precedence for other corporate bodies to follow suit. With the same sentiments in mind, the Faculty of Science has been approached by both Zimasco and Murowa Diamonds.

The focus of this fund is to establish a chair firstly in one and eventually in all of the affected departments as none have a substantive head.

6.2 1:1 million map (H. N. Gumbo, Tim Broderick, Dennis Shoko)

The last publication of the 1:1million geological map of Zimbabwe was the 7th edition done in 1977, some 30 years ago! It was normal practice in the past to have a new edition at least every decade. All post-Independence work has not been incorporated into the present map. Therefore, the 8th edition will have very significant changes and additions to the expression of Zimbabwe's geology.

The Society is waiting for a proposal from the Zimbabwe Geological Survey to present to potential sponsors, one on whom is the UNDP who have shown an interest.

6.3 Atlas Project (A. du Toit, N. Matura)

Since the presentation of the project at the 2005 Summer Symposium in Bulawayo, no additional work has been done on this. What needs to be added to the current version are pictures and UTM co-ordinates to complete most of the sites that are already in the current database. We appeal to members not only to look at the existing atlas and contribute missing information but to also submit requisite information on new sites they visit or know.

Eventually we aim to turn the atlas into a GIS, 1: 1 million geology map of Zimbabwe.

6.4 Rand

The GSZ sponsored Shandirai Musengi, an honours geology student at UZ, to the tune of USD900.

6.5 The A.E. Phaup Award (N. Matura, Keith Viewing)

There has been a shortage of papers on Zimbabwean geology in the last two years. For this reason, there was no award made in 2005, but a paper published in December is deemed worthy of the award, which will be presented today. The 2006 award will also be presented today. Our thanks are extended for the hard work of the sub-committee.

6.6 The Mike Vinyu Award

This award is given to best final year student from the School of Mines and will also be presented this evening. It is in recognition of the late Dr Mike Vinyu's contribution to the profession of geology and the science as a whole.

6.7 The Geoffrey Bond Award

In recognition of Geoffrey Bond's contribution to the understanding of the geology of Zimbabwe, an award is given for the best geology honours project presented at UZ. This will be awarded today, as there was an honours course in 2006.

6.8 Newsletter (Tim Broderick, Nyikadzino Matura)

Three newsletters were published by this committee, appearing digitally in May and September of 2006 and in February 2007. All are quality publications with very exciting articles on regional

earthquakes (May & September), the Marange kimberlites (September) and as a letter from Dar es Salaam (September), to mention but a few.

We had comments of appreciation from our members as far a field as the USA. I would like to think that these publications generated a lot of interest in the activities of our Society. Thanks to the alertness, open-mindedness and professionalism of our able editorial members.

7. Website

The Website took a while to get updated but is now running. The address is <http://www.uz.ac.zw/science/geology/gsz>. I don't think many of us, including myself bother to visit the site regularly. In doing so members can give us feedback on how it could be improved.

8. Finances

Our treasurer, Collins Mwatawa will give us his report. He is thanked for the dedication he has shown towards this onerous task during the year.

9. Closing Remarks

I would like to take this opportunity to thank all my colleagues in the out-going committee for a job well done and more importantly to our membership, without whose support we would have achieved nothing.

I wish the incoming committee headed by Kudzi Musiiwa the best in 2007.

THANK YOU

Hillary Gumbo, February 2007

GSZ Accounts, 2006

Geological Society of Zimbabwe For Years end February 06 and February 07

Income and Expenditure Account

	Note	2006 Z\$	2005 Z\$	2004 Z\$
Income				
Subscriptions	2	152,130	6,057	6,365
Donations		22,660	0	0
Functions, trips etc	3	879,400	19,830	5,205
Interest Received	4	35,256	5,154	385
Exchange Rate Gain		2,520,170	1,662,201	74,554
Sale of Ties	5	20,000	24,600	24,600
AGM - 2006		8,700	760	40
Adjustments	6	0	385	233
Sundry Revenue		500	0	0

	3,638,816	1,718,987	111,381
<u>Expenditure</u>			
Newsletter and Publications	0	0	200
AGMs	13,500	2,995	225
Bank Charges	17,449	2,540	274
Printing and Stationery	8,000	50	13
Postage, Post Box	13,800	972	46
Investments Written off	0	0	6
RAND Committee	7 0	96,970	1,000
Functions, trips etc	8 549,448	17,197	4,633
Miscellaneous Expenses	9 8,053	1,500	1,975
	<u>610,250</u>	<u>122,224</u>	<u>8,371</u>
Net (Loss)/Income for the year	3,028,567	1,596,763	103,010

**Geological Society of Zimbabwe
For Years end February 06 and February 07**

Balance Sheet

EQUITY

Note that the General and Macgregor Fund have been combined for the sake of simplicity

	Notes	2006	2005	2004
			Z\$	Z\$
General Fund				
Balance brought forward		1,715,452	118,689	15,679
Income		3,638,816	1,718,987	111,381
Expenses		(610,250)	(122,224)	(8,371)
Total Funds		<u>4,744,018</u>	<u>1,715,452</u>	<u>118,689</u>

ASSETS

Current Assets

Bank Accounts and Cash	10	4,702,818	1,666,252	94,089
Stock	11	41,200	49,200	24,600
Total Assets		<u>4,744,018</u>	<u>1,715,452</u>	<u>118,689</u>

Current Liabilities

Creditors		<u>0</u>	<u>0</u>	<u>0</u>
Net Current Assets		<u>4,744,018</u>	<u>1,715,452</u>	<u>118,689</u>
Total Funds		<u>4,744,018</u>	<u>1,715,452</u>	<u>118,689</u>

Geological Society of Zimbabwe **Income and Expenditure Account**
For Years end February 2006 and February 2007

1. Accounting Convention

The financial statements are expressed in Zimbabwe Dollars and are prepared under the historical cost convention.

	2006	2005	2004
	Z\$	Z\$	Z\$
2. Subscriptions			
Current Ordinary Subscriptions	28,000	1,410	2,165
Foreign Membership	84,130	1,497	200
Current Institutional Membership	40,000	3,150	4,000
	<u>152,130</u>	<u>6,057</u>	<u>6,365</u>
3. Functions Trips etc Income			
Summer Symposium	729,400		2,735
Summer Symposium/ Hwange Trip		19,830	
Chewore			1,400
Muzarabani			980
Banked without details			90
Mugs	150,000		
	<u>879,400</u>	<u>19,830</u>	<u>5,205</u>
4. Interest Received			
Barclays Current	3,491	529	167
Barclays US\$ FCA, 2004 US\$43.56, 2005 US\$77.09	31,765	4,625	218
	<u>35,256</u>	<u>5,154</u>	<u>385</u>
5. Sale of Stock			
40 Ties	20,000	7,400	7,400
26 SSEG Books		10,400	10,400
28 SRB Books		5,600	5,600
4 Granites Books		1,200	1,200
	<u>20,000</u>	<u>24,600</u>	<u>24,600</u>
6. Adjustments			
		385	233
	0	385	233
7. RAND Committee			
Journal Subs (US\$ 164.5)		14,985	
Scholarships (2004 Matura US\$200, 2005 Hons Student US\$900)		81,985	1,000
Bank Commission			
	<u>0</u>	<u>96,970</u>	<u>1,000</u>
8. Functions Trips etc Expenditure			
Summer Symposium	486,255		1,442
Summer Symposium/ Hwange Trip		14,849	
Macgregor Lectures		2,348	
Kramers Field Trip Sponsorship (replace airfare for Macgregor Lecture)			1,873
Chewore			943
Muzarabani			375
Mugs	63,193		
	<u>549,448</u>	<u>17,197</u>	<u>4,633</u>
9. Miscellaneous Expenses			
Christmas Braai 2004			406

Advances to Mennell Society			660
Chamber AGM	8,053		909
Phaup and Atlas Project		1,500	
	8,053	1,500	1,975
10. Current Account and Cash			
Barclays current Account	402,410	6,938	5,396
Barclays FCA (2003 US\$ 17 843, 2004 US\$17 696, 2005 US\$16 709)	4,293,285	1,657,541	88,482
Petty Cash Z\$	6,773	1,773	10
Petty Cash US\$ (2004 US\$40; 2006 ZAR10)	350	0	200
	4,702,818	1,666,252	94,089
11. Stock			
34 Ties	6,800	14,800	7,400
26 SSEG Books	20,800	20,800	10,400
28 SRB Books	11,200	11,200	5,600
4 Granites Books	2,400	2,400	1,200
	41,200	49,200	24,600
12. Exchange Rates			
Year end exchange rates	Z\$/US\$		
	250	99	5
Chairman 2006	<i>Hillary Gumbo</i>	Treasurer 2006	<i>Collins Mwatawa</i>

Citations to the A. E. Phaup Awards for 2005 and 2006

K.A. Viewing, February 2007

Three published papers on the geology of Zimbabwe were available for review, one for 2005 and two for 2006. The papers were each considered by Nyikadzino Matura and Keith Viewing, and their recommendations to the Committee were agreed by circulation.

The subjects under review were diverse with multiple authors; fossil plants (6), water resources (4) and glacier diamonds (2). Each paper makes a significant contribution to geological knowledge in Zimbabwe and two will have an immediate impact and stimulate the development of resources. All three of these papers were recommended for the Albert Edward Phaup Award for the year of their publication.

Barale, G., Bamford, M.K., Gomez, B., Broderick, T.J., Raath, M.A. and Cadman, A. 2005. A fossil peat deposit from the Late Triassic (Carnian) of Zimbabwe with preserved cuticle of PteridspERMOPSIDA and Ginkgoales, and its geological setting. *Palaeont. afr.*, **41**, pp. 89-100.

The award for 2005 is a thorough description of a deposit of peat preserved in the Upper Karoo, or Late Triassic of the Zambezi Valley. Six authors contributed, from the University of Lyon, the Bernard Price Institute for Palaeontological Research and the Geological Survey of Zimbabwe.

The contribution is of great value as the definition of a Type Area to which other sites may be referred in the future. Type Areas are essential reference locations in stratigraphy and Dr Phaup, himself, had defined the Deweras Formation from Deweras Farm near Chakari. He would be

pleased to be associated with this careful and definitive description. The Society had at one time agreed to set up type areas for the country, for the benefit of students and for the flow of visitors who wished to examine the Archaean, in particular, unencumbered by ice and snow, tropical rain forest or deep weathering obscured by desert.

The classic stratigraphy indicates a significant gap in the record of the middle to upper Triassic of southern Africa, say from 220-240 my. Yet this paper describes flora characteristic of the Carnian, at the base of the Upper Triassic. The peat is preserved in carbonaceous shale and mudstone of the Cabora Bassa Basin in the Zambezi Valley in a tributary to the Angwa River. Remarkably well-preserved fragments are found of the extinct fern *Lepidopteris* and seed fern *Dicroidium* (Pteridosperms), and the maiden-hair fern *Sphenobaiera* (Ginkgoales). Several other examples of these plants are recorded from elsewhere in Zimbabwe and the sub-region, but this site is close to another that includes the remains of the Rhynchosaur, *Hyperodapedon*, a relatively small and primitive lizard-like creature. Thus both the flora and fauna indicate the age of the rocks to be Upper Triassic, (equivalent perhaps to the Molteno), as compared to Middle-Triassic.

The environment was a quiet and swampy flood plain that included, probably, oxbow lakes separate from the main channel. The peat consists mainly of ash and separated remains of plants as leaves, fronds and ovules that are all very well preserved. The peat is capped by a rapid inflow of sandy sediment. The observations by light microscope and SEM (32 images) are given in detail and the discussion indicates a broad knowledge of similar plant material from the Molteno of Natal and other sites in Australia. Special knowledge is needed to comprehend the spread of these plants through the Late Permian and Triassic, and into the Lower-Jurassic. Similarly, the uninitiated are unlikely to interpret the relevance of these discoveries to the history of Gondwanaland.

For most of us in the minerals business who may be lost in the detail, it is important to know that such very careful studies are in progress that establish and refine the stratigraphy of the Upper Triassic, and permit sensible correlations elsewhere.

Access to the site is good via the Angwa Bridge below the Zambezi Escarpment, and about 7 km north to the Manyima bridge. The layer of peat is exposed downstream on the right bank and is about 1.5 m thick.

Classic texts by W.E. Swinton, Edwin H. Colbert and Alfred S. Romer indicate that the *Rhynchosauria* were primitive reptiles with curved beak-like projections to the upper jaw. Other projections have the appearance of teeth, similar to rodents. Whether these creatures were herbivores or carnivores seems uncertain for the teeth are rudimentary. Small, flattened surfaces are best suited to crushing rounded nuts released, perhaps, from riverine vegetation. Presumably such fruits were seasonal and so some means of storage would be necessary. (The Norian Group includes the Plateosaurus zone that supercedes the Carnian. There is a vision, therefore, of *Hyperodepedon* pursued by the incredibly dangerous plateosaurs through seasonal swamps. The literature is silent upon whether the *Rhynchosauria* were amphibious and like modern-day squirrels, could keep their nuts dry).

Moore, A. and Moore, J. 2006. A glacial ancestry for the Somabula diamond-bearing alluvial deposit, Central Zimbabwe. *S. Afr. J. Geol.*, **109**, pp. 625-636.

Dr Phaup was based in the Gweru office of the Geological Survey and that responsibility

included the Somabula diamond deposits on Sonambula Farm. Those involved in the exploration of these deposits were certainly not somnambulant and the present paper is an excellent review of knowledge gained from a century of investigation. Dr Phaup had spent many weekends on the diggings and he would be pleased to know that his interest remained of topical concern.

But the deposits were low grade and not economic, and so the work was generated at wide intervals to take advantage of some new conceptual approach. One recent paper, for example, had advocated a source in the D.R.C. and transport by south-flowing drainage. The present paper, however, has reviewed all of the material available and concludes that the diamonds accumulated in shallow pockets on an uneven surface of weathered granite gneiss from a process of glacial erosion and transport. The direction of transport is evident from other explorations about 40 km west of Somabula and is taken as northwest, based upon the distribution of kimberlite and of ilmenite and garnet as tracer minerals. Staurolite occurs with the Somabula diamonds and the principal sources are believed to be either from Mwami (Miami) or Nyanga, with relatively fresh material also occurring in gravels near Featherstone.

Phaup had summarized the production at Somabula (to 1954) as 317.7 g, or about GBP 240/g, a value that reflects the quality and the size of the stones. The paper refers to carats, of course, but for those of us not engaged in the diamond business, the largest stone was a boart, of 1g. A more recent value appears to be about GBP 3.5/g.

The diamonds were produced from poorly sorted immature and often clay-rich arkose in the basal gravel on an irregular, weathered grey-granite surface. These pockets are blanketed by an impersistent Karoo mudstone, and in turn by coarse-grained feldspathic sandstone and conglomerate to a thickness of 38 m. Fossil plants indicate an age of Upper Karoo, about 150 Ma, that rests upon granite of about 2.7 Ga. The age of the diamonds could be about 1.5 Ga or very much younger. Some of the diamonds were intensely weathered, and others fresh and marketable. Thus the Somabula diamonds were derived from different sources, according to the degree of abrasion and rounding, and derived, therefore, from both local and distal sources. The huge gaps of the geological record from the granite-gneiss of the Basement to the Upper Karoo, and to the Kalahari Sand above, indicate significant gaps in the record from 2.8 Ga to 250 Ma and then to 50 Ma. De Beers had found about 100 kimberlites in Zimbabwe prior to 1975, and the sources of alluvial diamonds will be difficult to prove.

The geological map of 1944 indicates the deposits to lie in the upper catchment of the Somabula River, a tributary to the Vungu. The interfluvium between the Ngamo and Vungu rivers is illustrated as an outlier of Karoo sediments that extend to the northwest for 20 km and beyond. The area is prospected, but the gravels around the margin of the outlier appear to be barren of diamonds and the presence of occasional fresh agates indicate that these cap the Karoo. The thin sequence of post-Karoo white, yellow and ferruginous silica sand above indicates the gap in geological record to the onset of the Kalahari. The distribution of iron oxides in these sands provides evidence of deep tropical weathering.

The Somabula diamond gravels were preserved under a cap of Karoo sediments at the head of the present drainage and appear distinctly anomalous in that setting. Deep pockets in the granite surface may yet be found elsewhere that will yield diamonds of saleable quality.

Moyce, W., Mangeya, P., Owen, R. and Love, D. 2006. Alluvial aquifers in the Mzingwane catchment: Their distribution, properties, current usage and potential expansion. *Physics and Chemistry of the Earth*, **31**, pp. 988-994.

The responsibility for water resources seems always to start with a national geological survey where such information is well preserved and accessible. Subsequently the focus moves on to some other division of government perhaps more concerned with surface water and dams, and better funded at the time. Whatever the circumstances, some of the links that are so helpful in earth science may be lost and we depend more and more upon the interest and enthusiasm of individuals. In this case all four of those relate directly, or indirectly, to the Department of Geology, UZ.

Remote sensing is applied to the water resources of the Mzingwane River catchment that extends from Bulawayo to the confluence with the Limpopo over a distance of about 270 km. The upper catchment includes parts of the Bulawayo and Gwanda greenstone belts within a granitic terrain. The lower catchment traverses an expanse of Karoo basalt about 50 km wide, and gneisses of the Limpopo Mobile Belt. Thus the slope of the valley floor (thalweg) is not consistent and there are significant differences in the pattern of erosion. These factors affect the disposition of the alluvium in the channel, abandoned meanders, and upon the banks as terraces and the flood plain, in particular across the basalts where the slope is relatively gentle.

Detailed studies of certain specific aquifers are extrapolated to other sites within the catchment, and estimates made for large and small irrigation projects that vary from 18 h to 543 h for alluvium in the main channel, to 8 h and 692 h for alluvium on the flood plain. These estimates are based upon previous studies at selected sites and a requirement of 50 cubic metres of water per day, per hectare. The scale of these aquifers is large, say alluvium that extends in places for 20 km and is about 20 m thick. The alluvium is saturated early in the rains and the recharge at a rate of about 1.5 km/day is assured according to the rainfall, which is erratic. In non-drought years the aquifers are expected to yield water for 200 days at a drawdown rate of say 5 mm/day. Evaporation proceeds from the surface to a depth of about a metre.

Droughts and inadequate recharge affect salinity that constrains irrigable crops, and may encourage the formation of calcrete in flood plains underlain by basalt, although this factor is not considered. Archive images over a period of 30 years of Landsat imagery should reveal whether the aquifers are stable.

The present paper offers an excellent base for the management of the entire Mzingwane river system and all that is implied from the City of Bulawayo to seasonal regeneration downstream, and the sensible yields that may be expected from individual aquifers. The paper provides also, a valuable model for the rapid assessment of similar drainages elsewhere in the region for the benefit of both small and large-scale irrigation projects.

Note upon format

The format of all three papers is in the familiar pattern with excellent maps and illustrations, data, discussions, summaries or conclusions, and references that confirm the authors' familiarity with the literature. These papers are well written in the modern style in which the reader is presented with the results AND discussion merged as one. This arrangement simplifies the message, but those who follow need to discriminate the facts.

The lay out of one of the papers seems more complex than is needed, and in another the occasional use of geological jargon stimulates the imagination. Strangers who search for the Left Bank in Paris, for example, may wonder where they are on the meander curves, which direction

is downstream, and whether the current relates to the ebb or flood! Fortunately the reader in this case is given 'north'.

The references are named and dated in the text and all three papers have avoided most of the difficulties that result. Reference numbers are preferred for these to allow a continuous flow of the text as the reader accepts new ideas, assimilates new data, and evaluates the discussion that follows. For example: subject, verb, object; or the well-used expression 'the cat sat on the mat'⁽¹⁾.

Collaborative research is the lifeblood of science, encouragement is the key, and the sources of finance and technical support need to be identified for the benefit of all. Acronyms may not be adequate.

Citation to the Geoffrey Bond Award for 2006

Title of the thesis: Geological Mapping of the Great Dyke of Zimbabwe from Darwendale to Impinge – North Dyke (with emphasis on seam characterization and occurrence of the blank zones)

I am very pleased to present the citation for the winning honours degree dissertation for the year 2006, particularly as the programme has been suspended for the past three years. The last Geoffrey Bond Award was presented in 2004 for a project submitted in 2003. The suspension of honours was due to many factors, chief among them being the lack of funding and reduced manpower to run the programme. Five dissertations were submitted in 2006. All were of high quality. However, the one written by Irvine Nyamukondiwa was outstanding in terms of the amount of research work done, his research approach and the quality of presentation. The work was carried out on the Great Dyke of Zimbabwe. Ironically the last Bond Award was also related to a project carried out on the Dyke. The project by Mr Nyamukondiwa looks at chrome mineralization in the North Dyke and at anomalies associated with the chromite seams. The project tries, with a lot of success, to clearly characterize the various seams in terms of their friability, Cr₂O₃ content, thickness and specific areas of outcrop as one moves from Darwendale north to Mpinga. The exposure of different seams from south to north in this part of the Dyke, particularly with lower seams starting to appear, is essential in the understanding and appreciation of the amount of uplift and erosion that has affected the Dyke since the Archaean. The project also tries to show the existence of 'blank zones' within the Dyke seams and suggests how one might predict where these can be found. This is very important as it can lead to huge savings in allowing mine development only to be carried out where the seam occurs. Due to the economic difficulties currently being faced in our country, any chrome mine manager would find this thesis very helpful and relevant. Looking at the practical application of the results of this research work and its academic importance provides a great help in furthering our understanding of the Great Dyke, It is befitting that Mr Nyamukondiwa be the recipient of the Bond Award for the year 2006.

Judging by the number of Bond award-winning research projects that continue to be carried out on the Great Dyke, shows that we still have a lot to learn about its geology, especially considering that until only very recently it was widely believed to be Proterozoic in age!

N. Matura, read by N. Tobani, February 2007

Geological Mapping of the Great Dyke of Zimbabwe from Darwendale to Impinge – North Dyke: (with emphasis on seam characterization and the occurrence of blank zones)

Irvin T. Nyamukondiwa (2006)

Abstract

The Great Dyke hosts world class resources of metallurgical grade chromite and contains the world's second largest reserve of PGE's and chromite after the Bushveld Igneous Complex in South Africa. Considerable literature has been published on the geology and structure of the Great Dyke, but very little work has been done on field relationships between the various seams and variations of chromium content along their strike and down dip as well as on the occurrence of 'blank zones' within the lower seams of the complex. In order to help achieve maximum benefit from the extensive chromium ore in the Great Dyke, this project was carried out to investigate the physical and chemical properties of chromite seams as well as the occurrence of blank zones. The seams in the Great Dyke do not show much variation in terms of grade along strike although in isolated, localised areas may show extreme variation in some of their physical properties. These variations can occur over very short distances and within the same seam. Physical ratings of the chromite seams based on an allocation of points for the physical and chemical properties of the seams show that Seam 4 and Seam 9 have the best physical and chemical properties. Geochemical analyses show that there is a steady decrease on Al_2O_3 , CaO, and SiO_2 and an increase in Sr, Cr_2O_3 and MgO with depth in the magma chamber. They also indicate that silica has a strong negative correlation with Cr_2O_3 and MgO, whilst a positive correlation exists with CaO, Al_2O_3 and to some extent FeO. Friability in the Dyke seams is influenced by primary as well as secondary effects such as grain size and cement material, silicification, shearing and mylonitization, surface processes and the influence of water. Blank zones are coincident with major faults and layer-parallel shearing implies structural control. They can be projected along strike of the structures as well as between different seams. The extent of blanking is, however, not influenced by the direction of dip of the structure. They can also occur in clusters or in isolation, which can make them difficult to predict. There is no evidence to suggest that blank zones are erosional features and thus they are not similar to the pothole structures encountered in the Bushveld Igneous Complex. Blank zones cannot be avoided completely as, those areas that contain lumpy chrome ore are controlled by the same processes that produce or accentuate the blank zones.

News



Geology Department, University of Zimbabwe

Nyikadzino Matura

The second semester started badly as there was industrial action by both academic and non-academic staff. Although the semester has now started, the protracted dispute between administration and staff has resulted in the university losing a number of lecturers to other

regional and international institutions. The Geology Department received two resignation letters, one from Mr Tobani and another from Mr Mukwakwami. Other lecturers have signalled their intention to resign and if they proceed, which is highly likely, the Department will lose more staff before the end of June. This will leave us with only four lecturers out of a complement of 17.

The technical department has also lost two very senior and important members in Mr Cuthbert Banda, who resigned, and sadly, Mr William Samatanga who has died. May his soul rest in peace.

The implications brought about by the continuous loss of staff, both academic and non-academic, means that the Department is at the edge of its extinction. The mining industry should ready itself for the importation of professional labour in the not too distant future or else join in the initiatives proposed to save Geology and other mining-related departments that are alluded to elsewhere in this newsletter.

Honours Projects done in 2006

Irvin T. Nyamukondiwa (2006) Geological mapping of the Great Dyke of Zimbabwe from Darwendale to Impinge – North Dyke: (with emphasis on seam characterization and the occurrence of blank zones).

Dereck Muchingami (2006) The geology of an area north of Matopos Granite: Implications for further gold exploration.

Shandirai Musengi (2006) Lithological and structural investigations of the area around Thames Mine-Blue Grass, Kadoma: Implications for gold exploration.

Kandemiiri Tatenda Isaiah (2006) The geology, alteration pattern and metal content analysis of the area around and east of Shamva Mine: Generation of potential target areas for gold exploration.

Constance Nyarai Karenga (2006) Geological controls of mineralisation at Ayrshire Mine: Implications for further exploration.

Geological Survey Department



ZIMBABWE

Forbes Mugumbate

Staffing

The Department's key functions of generating and collating national geological information continue to be negatively affected by shortages of both financial and human resources. It is currently not possible to recruit suitably qualified and experienced geoscientists. Only inexperienced candidates were recruited, many of them holders of BSc General degrees against the traditional requirement of a minimum BSc Honours in Geology or an MSc in Exploration Geophysics. Most of the new geoscientists who have been recruited leave on gaining some experience or else soon after completing higher training. Consequently the staffing situation is now highly skewed and the table and accompanying graph show that there are a few experienced geoscientists occupying management positions and several inexperienced geoscientists occupying entry-level positions. Missing is the middle level of experienced and senior geoscientists. This is an undesirable situation as the resignation of even one senior geoscientist might spell disaster. There are not enough senior professionals in the ranks to train or nurture for the future.

Professional staffing situation as at 30th April 2007

Post	Incumbent	Qualification	No. Post	Filled Posts	Vac	Comments
Director	Hawadi, M.T.	MSc Exploration Geophysics	1	1	0	
Deputy Director	Mugumbate, F.	MSc Applied Structural Geology and Rock Mechanics	1	1	0	
Regional Geologist	Mupaya, F.B.	MSc Ore Deposit Geology and Valuation	3	1	2	
Chief Econ. Geologist	-	-	1	0	1	
Chief Field Geologist	-	-	1	0	1	
Chief Geophysicist	Masuku, N.	MSc Exploration Geophysics	1	1	0	
Geologist/ Snr / Principal	Goromonzi, I. Ruwende, T. Mukandi, M. Mugandani, E.T. Nyamagodo, T. Murapa, T. Muchekekeni, N. Chikomo, F. Chinguno, N. Mpindiwa, S. Muredzo, P.	BSc Hons. Geology BSc Hons. Geology BSc Hons Geology BSc General BSc General BSc General BSc General BSc General BSc General BSc General BSc General	26	13	13	-Principal Geologist, acting Chief Economic Geologist. -Principal Geologist, acting Midlands Regional Geologist. -Principal Geologist, acting Chief IT Geoscientist. -Geologist – Studying part-time MSc. -Geologist. Joined 12 June 2006 -Geologist. Joined 12 June 2006 -Geologist. Joined 20 June 2006 -Geologist. Joined 26 June 2006 -Geologist. Joined 12 June 2006 -Geologist. Joined 28 June 2006 -Geologist. Joined 4 Sept 2006
Geophysicist /Snr/ Princ.	Shawarira, L. Charumbira, A. Mayida, I. Ngoro, M.M.	BSc Hons Physics BSc Hons. Physics BSc Hons. Physics BSc General	5	5	0	-Geophysicist. Joined 26/06/06 -Geophysicist. Joined 26/06/06 -Geophysicist. Joined 26/06/06 -Geophysicist. Joined 26/06/06

Geoscientist / Snr/ Princ. (Data Management)	Chingombe, T Makuvaza, A.	BSc Hons. Physics BSc General	2	2	0	-Geophysicist. Joined 22/05/06 -Geophysicist. Joined 14/06/06
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Experience distribution in the professional staff category at the Geological Survey

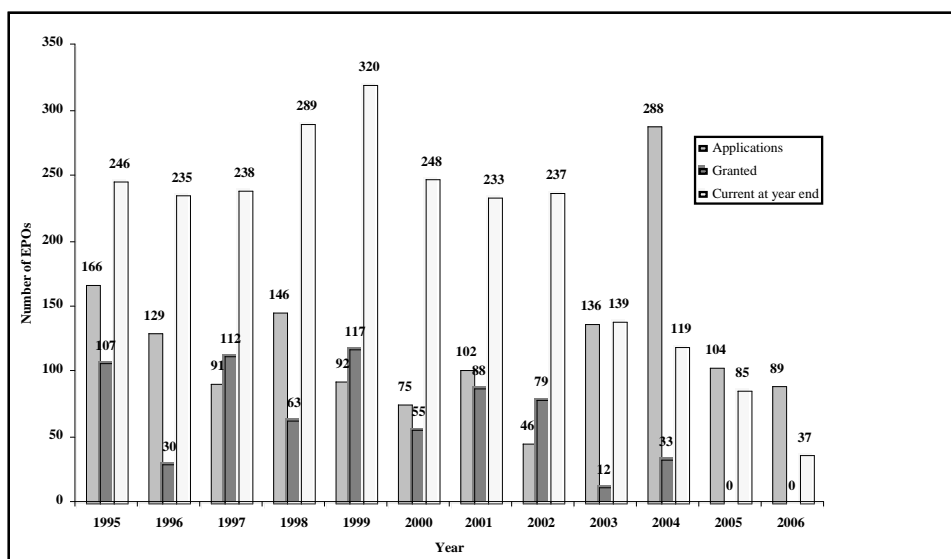
A worrying consequence of the high staff turnover is the fact that some of the work initiated by geoscientists who left before completing their tasks may never be completed.

In spite of these and many other morale dampeners, members of staff are commended for performing their duties professionally. There have been concerted efforts to reduce the backlog of unpublished materials. Short Report 53, Centenary-Mount Darwin, was published towards end of 2006, and the in-house editing of Bulletin 95, Dorowa-Shawa, is progressing well. The Department implementing plans to access certain funds at the Ministry to facilitate the publishing of more outstanding material.

Mineral Exploration

The future of mining in this country is under threat. For more than two years no licences for mineral exploration have been granted. Exploration progress across the whole country has stagnated due to the areas held under application for Exclusive Prospecting Orders. There is great apprehension within mining circles as to the government’s intention in not allowing this exploration, which is vital for the replacement of depleting ore bodies and the need to discover new deposits for future development. One of the reasons given for not granting these EPO’s is that the government has been waiting for finalization of their indigenisation policy. However, the Minister has now been convinced that the granting of licences for exploration will not jeopardise this process. It is therefore expected that the granting of many new EPO’s will be witnessed in the next few weeks. Currently the situation is as depicted in the graph below.

The apparent throttling of exploration activity and the general economic difficulties in the country in general have triggered an exodus of geoscientists and other mining professionals to neighbouring countries where there is currently a boom in exploration fuelled by high metal prices. The majority of experienced mining professionals are now working outside Zimbabwe, thus jeopardising any prospects for a quick recovery of our mining industry.



EPO trends over the years

Currently there are only a few active EPOs, the main player being Canister Resources who continue with their innovative exploration techniques for base metals, precious metals and diamonds in areas under Karoo and Kalahari cover west of Bulawayo. An important outcome of this exploration so far is the realization that greenstone belts extend further to the west than has previously been understood.

The demand for coal in the country saw many companies applying for Special Grants to explore for this commodity. As a result, all areas with known coal potential are virtually covered. However, as with EPO applications, the granting of Special Grants has been stifled and consequently not much exploration work is taking place on the ground.

The Look-East policy gave a glimmer of hope for our ailing mining industry. Several companies from China and Russia visited Zimbabwe seeking investment opportunities in mining. This resulted in the formation of Joint Venture companies with the ZMDC to evaluate some chromite prospects along the Great Dyke, PGMs across the Darwendale end of the Hartley Complex, and gold in the Chimanimani area. However, it has become apparent that these potential investors have a different approach to that of traditional western companies. They are reluctant to go into greenfield exploration, preferring mineral deposits having known technical information. This presents a problem, as there are not many ore deposits with such information available.

Mining Industry News

Financial Gazette, 24th May, 2007

Staff Reporter

Minerals price boom skirts Zim

ALTHOUGH miners elsewhere are smiling all the way to the bank owing to high mineral prices on the world market, their Zimbabwean counterparts have a sad tale to tell and are battling to survive, Chamber of Mines President Jack Murehwa said last week.

Murehwa told delegates at the Chamber's Annual General Meeting that Zimbabwe had not benefited from the boom in mineral prices currently benefiting mining houses internationally.

He said high inflation, a skewed exchange rate and foreign currency and power shortages had devastatingly affected mining operations in the country. Nickel, platinum and gold had continued to fetch good prices on the international market, buoyed by strong demand in China. "While prices of metals are currently so good, with a lot of investment being made in other African countries, we in Zimbabwe have not benefited from this boom . . . Surely, our government has control over issues such as exchange rate management, inflation control, provision of foreign currency, approval of correct tariff structures to enable utilities like ZESA to sort out its power generation and supply, so that the mining sector and other businesses can thrive," said Murehwa. "Unfortunately price booms like we are experiencing today are not a long term feature and once we miss them they are unlikely to return in the short term," said Murehwa. Murehwa said both government and the Chamber had not achieved their goals as set out at last year's meeting, especially regarding empowerment in the mining sector. "We achieved neither the growth nor the empowerment to the extent we had anticipated and it is sad to note that our industry experienced and continues to experience declines in volumes in the production of most metals and minerals despite the very buoyant metal/mineral prices which prevailed throughout the past 18 months," he said. "Sadly, the metals and minerals that have survived the decline also risk stagnation or decline as policy frameworks continue to change," said Murehwa.

The mining sector is now the country's largest foreign currency earner after agriculture's collapse and contributes five percent to the country's Gross Domestic Product.

But there are amazingly positive and determined actions taking place in our mining industry, as witnessed by this photograph and that of the Lucilia Poort Dam towards the end of this missive. Can we really afford to jeopardize the confidence that encourages this sort of investment in our Nation? We need to create an environment that will see us all into the future. The examples are here to see, Bravo!



Portal 4, Ngezi Mine

Photo: Andrew du Toit

Research Funding Opportunities



GSZ Research and Development Fund

N. Matura

The objective of the Research and Development Fund is to give financial assistance for the development of earth science research and training in Zimbabwe. This financial assistance shall be in the form of annual Grants. Grants shall be made for activities over the course of up to one year. Those wishing to continue beyond one year must make subsequent and separate applications. The purpose of the Fund is to support:-

- Research projects on earth science topics of interest (Note that grants from the Fund will not be made to support projects which result in results that are not available to all members of the geological community in Zimbabwe);
- Scholarships for postgraduate study in earth sciences;
- Field trips and short courses for the training of Zimbabweans in earth sciences; and
- Travel to conferences to present earth science results.

In recommending the award of Grants, the following shall be considered:-

- The objective and purpose of the Fund;
- Potential benefits of the proposed activity to the geological and mining communities in Zimbabwe, in terms of development and/or the generation of new knowledge;
- The availability of matching funds, source or provided by the applicants; and
- The aim of awarding more than one Grant in a given year.

Grants made from the Fund shall be on condition that:-

- Results from the supported activity will be presented to the Society via a talk and an item or items in the Newsletter;
- Submission to the Fund Subcommittee of an annual report by 31 December of the year in which funding is granted; and
- Submission of a financial report to the Fund Subcommittee, with copies of receipts, by 31 December of the year in which funding is granted

All applicants for the award of Grants from the Fund shall be Members in good standing for the current membership year. Normally, the principal applicant should have been a member in good standing for at least twelve months.

Applicants for Grants should submit to the Research and Development Fund Subcommittee an application containing details of the applicants, summary of the activity, justification of the activity, proposed methodology, timeframe, budget for application and details of matching funds, if any. If you would like to apply for support, please contact the Research and Development Fund Subcommittee Secretary, N. Matura (nematura@science.uz.ac.zw) Applications for this year should be made by 1 July, 2007.



SEG Timothy Nutt Memorial Fund

David Love and Nyikadzino Matura

A fund in memory of Timothy Nutt has been established by the SEG Foundation at the request of his family and close friends. Tim was a prominent consulting economic geologist, a SEG Member and contributor to the Exploration Reviews pages of the SEG Newsletter. He worked extensively throughout Africa and had strong professional and emotional ties to the country of Zimbabwe. He was attacked and killed on April 12, 2003, while carrying out exploration work in Eritrea. He was 49.

In accordance with the wishes of Tim's widow, Jacquie, the fund is to provide financial support for students and young economic geologists located in Zimbabwe or in southern Africa with ties to Zimbabwe. The fund may be used to support travel to technical meetings, field trips, research grants, technical lectures, SEG student chapter activities or any other activities approved by the SEG Regional Vice President for Africa. SEG members resident in Zimbabwe will aid the Vice President in selecting recipients.

The Fund is now soliciting applications. If you would like to apply for support, please contact either Nyikadzino Matura (nematura@science.uz.ac.zw) or David Love (davidlove@science.uz.ac.zw). Applications for this year should be made by 1 July, 2007.

Society Activities

Talks Presented

Professor David Kreamer, University of Las Vegas, USA. *Groundwater Pollution, Flow*

Modelling and Case Studies. 1st June, 2007, Geology Department, UZ.

Ann Kritzinger, Sanyatwe, Nyanga. *Gold not Grain – Harvest of the Nyanga Terraces.* 15th June, 2007, Geology Department, UZ.

Letter from America

From: Jeff Chaumba [mailto:jbchaumba@yahoo.com]

Sent: Wednesday, June 06, 2007 2:49 PM

To: dms@zol.co.zw

Subject: RE: GSZ Talk - 15th June

Hi Gayle

I recognise a couple of UZ classmates and former Zim mining industry workmates on your list whom I will be glad to hear from. It has been a while since I left Zim, but I would like to take part in Society activities. However, I don't know when I may next be in the country. I was first in Pittsburgh, Pennsylvania for 2 years, but couldn't stand the snow. I am now based in Atlanta, Georgia. I was only recently in New York City for a week with my family when I visited Innocent Taziva and others. Kennedy Ruswayi is in Dallas and Mazaiwana is here with me in Atlanta. I am still very much involved in geology, both rockwise and with water. I did a second masters degree in hydrology, and I am still doing research work for publication. I will in future come and give a talk to the Society; maybe 5 years down the road.

All the best,

Jeff

Obituary

Ronald Malcolm (Bill) Wild, 1917-2007

Bill Wild was a civil engineer who dedicated nearly 60 years of his 90 years of life to dam design and water development in Zimbabwe. He graduated from London University in 1938 and was almost immediately drawn into the Second World War when he enlisted with the Royal Engineers and in 1944 he became involved in the design of the Mulberry Harbours that were used as artificial docks off the Normandy beaches after the D-Day landings. He joined the original Irrigation Department in Southern Rhodesia in 1948 and was attached to the Provincial Water Engineer in both Gweru and Mutare before assisting in the new irrigation design of the south-east Lowveld development. In 1955 he became the first Irrigation Department engineer to be posted to oversee the investigations for Kariba Dam, the foundations for which were diamond drilled by the Cementation Company. He was, with Director Savory, largely responsible for surveying and leading construction of the difficult South Access Road to serve Kariba, a road that ended up following elephant paths along the optimum routes from Makuti. He was then seconded to the consultants for Kariba, the consortium of Gibb, Coyne and Sogei, to assist in the construction supervision on the dam and there he was one of the few to witness at close quarters the wrath of 'Nyaminyami' during the floods of 1958 and 1959 when the coffer dams were over topped and the suspension bridge was swept away. This was the start of Bill's close association in the design of arched dams. He followed on to become the Resident Engineer for the construction of Kyle Dam and later was seconded to the offices of Coyne et Bellier in France where he played a large part in the design of Bangala Dam and when his brilliance for mathematical analysis in arch design shone. He became the chief designs engineer for the whole of the Lowveld development including the canals and the irrigation at Chisumbanje and he had direct involvement in the design and construction of the Siya, Silalabuwa, Darwendale and a host of other dams around Zimbabwe. He culminated his Government service with 8 years as Secretary for Water Development, a post he held until 1980. Upon retirement he joined Stewart Scott, Consulting Engineers, and remained in their association until the beginning of 2007. During that time there was a boom in the design and construction of farm dams, with which he had direct involvement in over 100. He had the theoretical and practical background to find the right solution for the size and

physical demands of these dams and he pioneered the construction of thin-walled masonry arch structures. To this end Zimbabwe can claim a world first. The Lucilia Poort Dam at Shurugwi was designed and built on the Wanderer Iron-Formation to a height of nearly 40 metres. This stands as a World record and a monument to Bill's working achievements in his 90th year and its water will serve the Unki Platinum Mine. I had the privilege of working with Bill Wild on the geological problems associated with many of his dam sites in both Zimbabwe and Malawi and acknowledge the way he encouraged all who worked with him in a humble, unassuming and respectful way which brought the best out of one's efforts to give a sense of pride in being associated with his considerable achievements. It is time to return that respect and share with you the life of dedication which makes someone part of our national heritage.

Tim Broderick



Lucilia Poort Dam, Shurugwi – Unki Mine Water Supply



Photos C. Mwatahwa

**GEOLOGICAL SOCIETY OF ZIMBABWE:
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