



GRADUATION NEWSLETTER

Chemistry Department Graduation Newsletter

April 2015

Congratulations!

Congrats to all our graduates, and their parents, sponsors, family and friends that helped them financially, spiritually and emotionally. You join a growing list of people that are trying to change the world one project at a time. To give you some inspiration let me tell you about two Rhodes scholars from about 100 years ago: The first is **Max Theiler**, then just 17, had completed his pre-medicine degree at the very new Rhodes University College. He would go on to complete a medical degree at UCT before joining Harvard University in 1922. His work on Yellow Fever would be recognised through the first African-born Nobel Prize laureate award in Medicine (1951). The second person was a young **Sir Basil FJ Schonland**, after completing at Rhodes would enlist in the British army and serve in the First World War. He then joined the famous Cavendish laboratory in Cambridge and much later (after World-War II) returned to South Africa to become the first Chancellor of Rhode's (among founding the CSIR and many other things).

These examples and many others started right here at Rhodes, and in fact probably right here in Chemistry under the equally brilliant Professor G Cory.

A great deal has changed in the 111 years of Rhodes – the University then consisted of only around 150 students, professors earned a handsome salary of £450 pounds a year, and for just 10 shillings you could watch a movie at the “Grand Bioscope”.

Some things never change- and while looking through the 1913 Graham's Town Journal I noticed two articles that might have come right out of another local paper, one commented on the new fashion of short skirts causing a stir in town and the other complaining about the poor state of the roads in Grahamstown.

- A few other things, however, were very different in the world. In

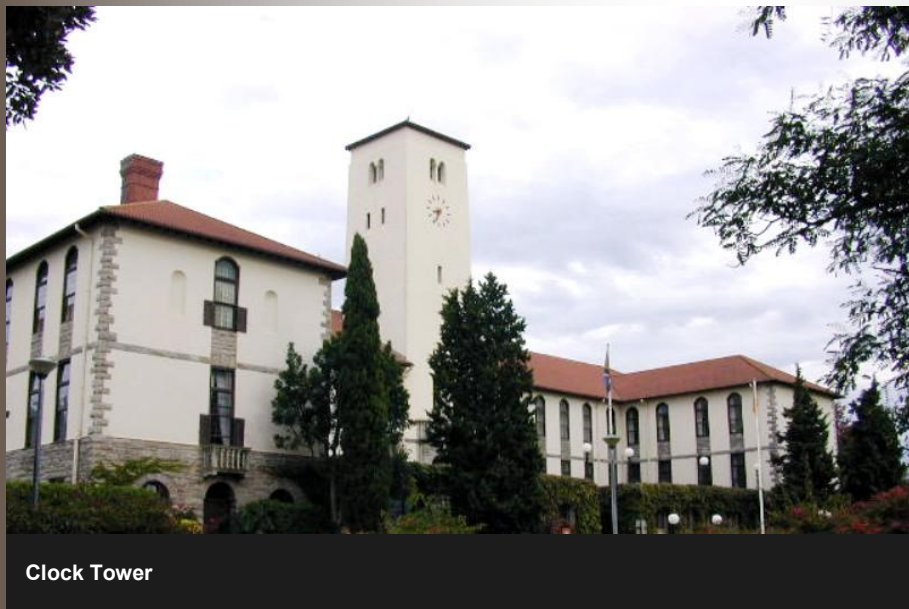
April 1915 chemical weapons (gas) were introduced with devastating effect for the first time. Other new chemical processes like ammonia synthesis and PVC polymers would change the world for ever.

It is my hope that every graduate takes inspiration from previous graduates, and strives to use their new skills to improve the world.

We may not be in WWI, but poverty, global warming, unemployment, disease and many other “Grand-Challenges” remain for YOU as Chemists to help craft creative solutions and turn South Africa into the global leader it is itching to become.

We hope you enjoy our newsletter.





Clock Tower

Minister Pandor visits Rhodes

Science and Technology Minister Naledi Pandor officially unveiled the new state of the art equipment at the Rhodes/DST Centre for Nanotechnology Innovation on the 14th November 2014, placing the institution at the forefront of international nanotechnology research.

During her visit, Minister Pandor admired the latest “**Time-of-Flight-Secondary-Ion-Mass-Spectrometer**” (TOF-SIMS), which cost a staggering R17-million and will help the university focus on specialized nanomaterials for cancer and micro-fiber research.

The equipment was bought and laboratory upgraded thanks to a partnership between the Department of Science and Technology (DST), National Research Foundation (NRF) and Rhodes University. Minister Pandor praised Distinguished Professor Nyokong, Director of the Centre, for her scientific publishing record, as well as her massive contribution to human capital development. “Having a record of training more than 70 postgraduate students is a fabulous achievement” she added.



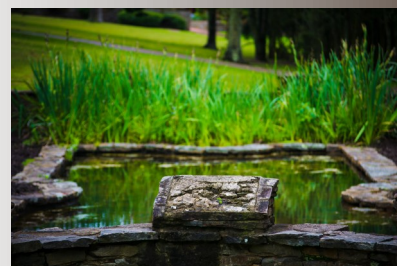
Prof Nyokong said she had stayed in the Eastern Cape because she supported the underdog. Despite being a poor province, the area had become a hub for nanotechnology with Nelson Mandela Metropolitan University (NMMU) also boasting hi-tech equipment to conduct research in other areas of the science.

“One of the things I encourage is that students who use the facilities must be hands-on,” she said.

NIC Workshop 2015

DST/Mintek NIC Workshop will take place at Rhodes University this year on the 28th and 29th October. Delegates from the Department of Science and Technology, Mintek, Medical Research Council, Water Research Commission, University of the Western Cape and University of Johannesburg will also attend the workshop.

Contact Dr Britton for more information.



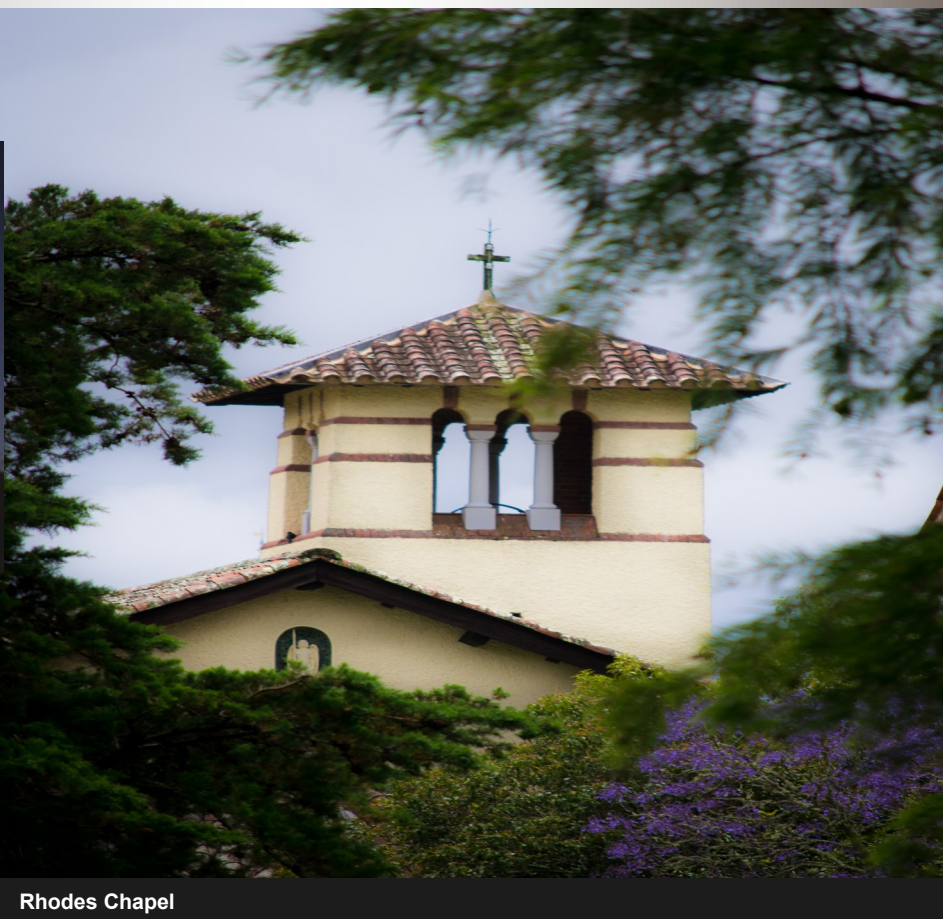
Dr Pritchett



Located just a few miles outside of Washington D.C., is the National Institute of Standards and Technology (NIST) where Dr Jeanita S. Pritchett works at a Research Chemist. She also works part-time as an Adjunct Chemistry Professor at Montgomery College.

Dr Pritchett was awarded a prestigious U.S. Embassy Science Fellowship for the 2014-2015. The fellowship enabled Dr Pritchett to come and share her expertise in the STEM field with the SciFest Africa 2015 team.

As an Outreach Officer for SciFest, she developed and presented interactive workshops for learners in and around the Grahamstown area to promote awareness and enthusiasm about science. Additionally, she also played an important role in assisting with coordination of Etcetera and Workshop programmes for the festival.



Rhodes Chapel

Conrad Cambray Award

Rhodes University's BSc 2nd year student, **Aphelele Ntlantsana** received the Conrad Dylan Cambray Award for 2015 recently.

The award not only celebrates the life of Conrad Dylan Cambray who was killed while cycling but also celebrates the excellence he strived for. His family, with the help of donors around Grahamstown and Rhodes University started the Conrad Dylan Cambray Award Fund and through it have helped 15 of our students complete their studies.

Ntlantsana said that he was deeply honoured to get the award. He thanked the Cambray family, sponsors and Rhodes University for having such as a scholarship. He said the award is an inspiration for him to work even harder. Talking about his career plans, he said he wants to first do research and gain experience through lecturing, but that he would love to have his own drug company, where he will produce drugs to help people who are suffering from disease.

The 2015 recipient of the Cambray scholarship is even more memorable special because he and Conrad went to Graeme College. Ntlantsana is the first recipient of the scholarship who comes from a Grahamstown school and has inspired current Graeme learners.

Present at the award presentation was the Cambray family who outlined the aim of the scholarship. Conrad's brother Dr Garth Cambray said their aim with the award fund was to recognise individuals who did not only define themselves as citizens confined to a country but rather citizens of the world.



Jim ADAMS - Deputy Chief Technologist | NASA during the Frontiers of Science



Frontiers of Science 2015

Every year around SciFest we try to host some high-caliber guest-lecturers. This year was truly inspirational with 4 top NASA scientists Dr Claudia Alexzander, Jet Propulsion Laboratory, Dr Cady (Catherine) Coleman, Lyndon Johnson Space Center, and Dr Ellen Stofan and Jim Adams, NASA Washington.



Professor Robin Grimes from Imperial College, London was our final guest — he is a Prof of Materials Physics and since 2013 was appointed the Foreign and Commonwealth Office Chief Scientific Advisor.

TEAM BUILDING 2015

In the realm of academia and research, the paramount importance of teamwork and mutual cooperation among academics, researchers, administrators and students cannot be over emphasized. It was for this reason that the department found time for a team building outing.

One of the key aims was to get to know



each other, especially new students, the 2015 Honours class and new staff.



This was successfully done by participating in fun and challenging activities, which created an opportunity for every group member to express themselves in an informal and neutral surrounding.

As one Honours student put it "the vari-

ous fun and challenging group games helped me and many other new students, I guess, even staff, in that they created and strengthened the individuals' sense of belonging to the chemistry department".

Other students said that it was a wonderful opportunity



for them to have been enlightened on presentation strategies, CV writing skills and interview personal presentation. "it was full of education, interaction, and fun at the same time".



POSTGRADUATE SKILLS ENHANCEMENT

The Chemistry Department of Rhodes University has acquired the best NMR facilities in the Eastern Cape and the rest of Africa, and continues to provide training and accessibility to ensure safety and better use of these facilities.

So far this year more than 50 people have been trained on the Bruker 300MHz NMR, and the

instrument continues daily analyses for researchers from various institutions in regards to structure elucidation and molecular thermodynamics.

Dr Xavier Siwe Noundou working as a volunteer, has taken charge of training and maintenance.

The Department houses two other advanced NMR instruments, the 400MHz NMR with both liquid and solid state probes (another first for the Eastern Cape) and the 600MHz NMR (with a cryoprobe) giving the highest sensitivity and resolution in the country, especially for small samples and proteins.



We only insist that Lawyers cannot do NMR because "Bar magnets have very poor homogeneity"

In addition, the Department of Chemistry purchased a Bench-Top Mass Spectrometer (Advion) last year 2014. On the 4th of March 2015, representatives from Advion Company visited Rhodes University to present the recent discovery of their company and to train both staff and students on TLC-CMS. This is a version of mass spectrometer that is



coupled with TLC (Thin layer chromatography) interface, this allow the direct analysis of the reaction outcome depending on the spot of interest on the TLC plate.

The technique is useful for optimization of reaction conditions and monitoring the reaction progress. This is such a great facility, which is going to make life easier for Postgraduate researchers.



All we can say, the access to different techniques and equipment is life changing as long as postgraduate are taking advantages of these opportunities.



Congratulations to our staff



Dr Sam Khene - promoted to Senior Lecturer

15 years long service awards:

Mr Heinrich Keulder



Mr Sandile Sakula



Photograph of High Street looking towards Rhodes from Prof Cory's collection



SOUTH AFRICAN CHEMICAL INSTITUTE
INORGANIC CHEMISTRY CONFERENCE 2015

Rhodes University is hosting the 17th South African Chemical Institute (SACI) Inorganic conference (INORG2015) from 28th June — 2nd July 2015. The scope of Inorg2015 Conference will cover all branches, including nanoscience & supramolecular chemistry, porphyrins & phthalocyanine chemistry, electrochemistry, organometallic, coordination and bioinorganic chemistry, catalysis, theoretical, environmental, green chemistry as well as material sciences. A great number of distinguished international and national speakers (check the website) will deliver keynote, plenary and invited lectures under listed themes.

Registration

Visit the website www.inorg2015.co.za

Important Dates

Registration and submission of abstracts

Friday 10 April 2015

Deadline for payment of fees

Saturday 11 April 2015

Contact

Prof Gary Watkins - g.watkins@ru.ac.za or chemistry@ru.ac.za

(046) 603 8254/5 or 603 8923

Invited speakers :

Prof Neil Champness
(Nottingham University, UK)

Prof Hiroyuki Furuta (Kyushu
University, Japan)

Prof. Nagao Kobayashi (Tohoku
University, Japan)

Prof Kenneth Ozoemena (CSIR,
SA)

Prof Peter Ajibade (Fort Hare
University, SA)

Prof. Robert Glaser (Ben-
Gurion University of the Neg-
ev)

Prof Yulia Gorbunova (Russian
Academy of Sciences, Russia)

Prof Alexander Martynov
(Russian Academy of Sciences,
Russia)

Prof Fabian Mohr
(Bergische Universität Wupper-
tal, Germany)

Prof Gregory Smith (UCT, SA)



Botany Gardens

Where is everyone and what on earth are they doing?

The one problem with a long history (111 years of Chemistry at Rhodes for example) is that academics soon start to lose their faculties. Luckily old chemists never die, they just smell that way from years in the lab. Those of you who have been to our website will notice we have started a page for all our ALUMNI. www.ru.ac.za/chemistry

So please help us to track down alumni that you may know of that we might firstly ask them to donate towards our BURSARY fund, but more importantly celebrate their successes.

chemistry@ru.ac.za

Please also visit the website and let us know how we can improve it and what you would like to see there.

Finally I would like to apologize that I cannot give you more chemistry jokes but I only post them periodically.
Rui Krause



Second-year Chemistry and Graham College students in a Dye Prac

Congratulations Colin Mkhize

Mr Colin Mkhize who received his Masters Degree (with distinction) this year has also been awarded the prestigious Rhodes scholarship to complete his Doctoral degree in Material Science at Oxford University, United Kingdom, which is a competitive course with limited space.

"I initially heard about it through the postgraduate funding office, but it was something that I had always heard about via the grapevine, seeing friends who had gone, but when I applied again this year it was honestly just me trying my luck."

"I didn't know how far I would get but I've always wanted to go and study abroad for anything since childhood. So this was an opportunity to try and pursue this and see how far I could get," explains the tenacious Mkhize.

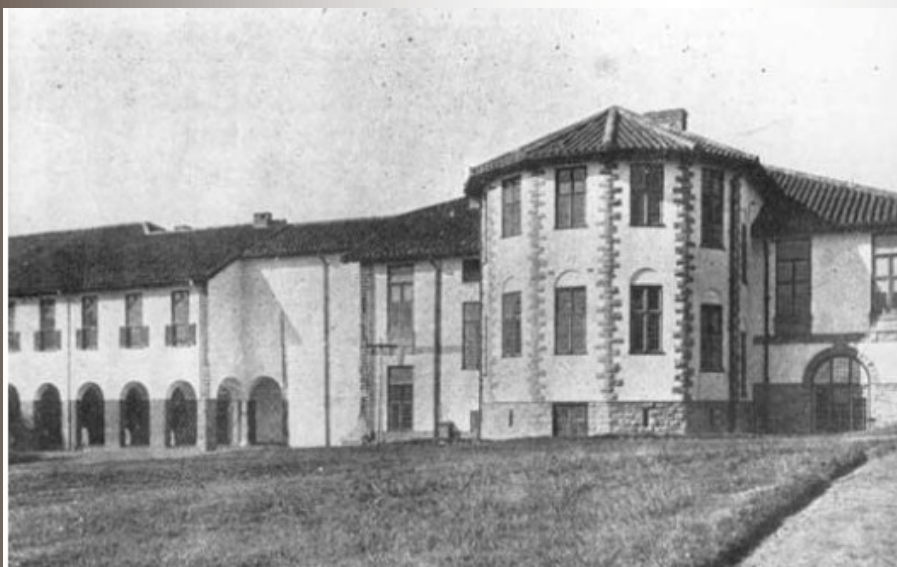
"I've been looking at a couple of topics which interest me and one of the main ones that interests me is looking at the toxicity of nanoparticles and that project is offered by Professor Harish Bhaskaran," shared Mkhize whose second choice is a PhD in Physical Chemistry.



"I've been really inspired by my supervisor, Prof Nyokong, who is trying hard to make research something which is useful in society".

"I am going to be terrified of missing the sun for the next three and a half years, other than that there are not any fears. I know Oxford is bigger than Rhodes, but it still has that small town feel. I don't think I will be out of my depth too much.

Mr Mkhize who has been at Rhodes since he started his 1st year of undergraduate studies in 2009 will start at Oxford University in October this year.



The Science building circa 1915, now part of Economics



Welcome Dr Mkhize

Dr Scebi Mkhize joined Distinguished Professor Nyokong's group as a Post-Doctoral Fellow in January 2015.

He completed his Doctoral degree at Chiba University, School of Pharmaceutical Science, Medicinal Chemistry, Japan in 2014 and his Masters degree in Organic Chemistry at the University of Cape Town, South Africa.

He is currently doing research on "Synthesis, Biological Evaluation and Molecular Modeling of 2-Aryl-1,4-naphthoquinone -1-oxime Methyl Ethers".

Dr Mkhize also worked for various laboratories including:

- African Centre for Seed Germplasm Laboratory, University of KwaZulu-Natal
- BioChemical Laboratory, University of KwaZulu-Natal, Chemical Engineering Department
- Water and Sanitation Department (Durban Metro Municipality)

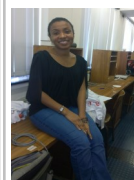
See Nanotechnology webpage for list of publications and details:

<http://www.ru.ac.za/nanotechnology/people/post-doctoralfellows/drimranuddin/>

Thanks to Jethro...

A special word of thanks to Jethro for the layout of the newsletter.

Farewell to Jaya and Reama



Dr Reama George started working as a post-doctoral fellow in August 2014, then she left for Germany for three months. She has thus been working in Prof Nyokong's laboratory for approximately four months and has been heavily involved in the supervision of graduate students. Dr George left Rhodes towards the end of March 2015.

Dr Jaya Lakkakula joined



Rhodes University as postdoctoral fellow in April 2014.

She was working under IBSA (India, Brazil and South Africa) fellowship with Prof Rui Krause. She left a note that reads "It was nice knowing everyone in the department. Thank you everybody for making my stay wonderful. With lots of love and luck."

...and Benita

For typesetting and for chasing up contributions to the newsletter.

Welcome Dr Uddin

Dr Imran Uddin from India joined Distinguished Professor Nyokong's group as a Post-Doctoral Fellow in March 2015.

He completed his Doctoral degree in Biotechnology at the National Chemical Laboratory, Pune, India in 2012.

His experience includes:

- Research Professor (PostDoc) of BK 21 plus Advanced Material Center, Nano Materials and Devices Laboratory, Division of Material Science & Engineering, Korea University, Seoul, Republic of Korea.
- Postdoctoral Researcher at Biochemical engineering and Biotechnology Division, Indian Institute Technology, Delhi, India.
- Research Associate at Teri-Deakin Nanobiotechnology Research Centre, The Energy and Resources Institute, Delhi, India.
- Research Scholar at Biochemical Sciences Division, National Chemical Laboratory, Pune, India.

See Nanotechnology webpage for list of publications and further details:

<http://www.ru.ac.za/nanotechnology/people/post-doctoralfellows/drimranuddin/>



The Drosdy building

Chemistry department at SciFest Africa 2015

Imagine writing your grade 12 Physical Sciences examination, and having to answer a question on practical work, but you have never seen, let alone done the experiment? Acid-base titrations are part of the grade 12 Physical Sciences curriculum; however, there are many schools which do not have the equipment to allow all their learners to have hands-on experience doing titrations. The Chemistry Department afforded 168 learners and their teachers this opportunity. Schools came from villages further than Mthatha to do titrations.

Mrs Sewry and her team also took "A Pollutant's Tale", first to the Albany Museum for a week and then to St Andrew's Preparatory school as a fitting end to their week of Science. "It was such a pleasure working with these Foundation Phase learners" said Mrs Sewry, "since they are all so eager, but also well-informed and well-disciplined".

Mrs Sewry thanks all staff and students who gave of their time to volunteer for these activities.



Congratulations to the following graduates:

PhD

Mr Adedayo Fashina
Mr Phindile Khoza
Mr Audacity Maringa
Ms Thandekile Mthethwa
Ms Rachael Ogbodu
Mr Olukayode Sanusi
Ms Nomapondo Magwa

Masters

Mr Muthumuni Managa (with distinction)
Mr Colin Mkhize (with distinction)
Mr Meloddy Manyeruke
Mr Lester Sigauke
Mr Kethobole Sekgotha
Ms Charmaine Tshangana

Honours C Abbott, B Cormack, J Harris, K Kelly, N Kota, Z Madikane, R Magwaza, G Makalima, J Matong, M Mbaba, S Msengana, S Mvango, N Njoko, C O'Donoghue, R Openshaw, A Saba, R Taylor, and C Tilbury

Thank you to our sponsors for making this celebration possible :

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